RISC user

APRIL 1993
Volume 6 Issue 5
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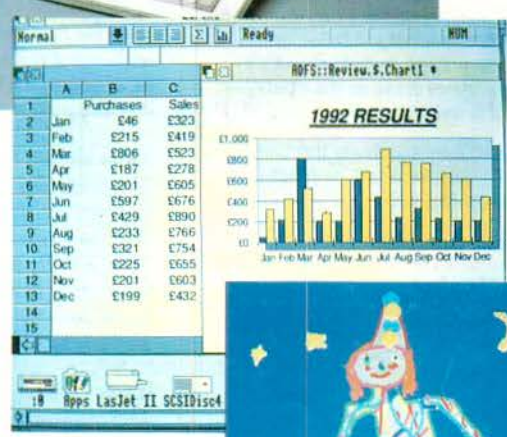
The magazine for users of Acorn RISC computers

CD-ROMs–the ultimate add-on?



Eureka

Education: developing picture processing

Canon BJ200 printer and TurboDriver

APRIL 1993
VOLUME 6 ISSUE 5

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THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

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BBC ACORN USER SHOW April '93

RISC Developments will have a stand at this event in Harrogate 15th-17th April. We hope to see many of our readers at that time.

PRODUCT UPDATES

No topical musings this month but updates on two of our more popular products, *ArcScan III* and the *Wimp Programmer's Toolkit*.

1. ArcScan

The Programmer's Reference Manual from Acorn for RISC OS 3 is expected to be available in April. Price is unconfirmed but is expected to be of the order of £70. In preparation for this, *ArcScan*, the computerised indexing system, has been updated to include an index for this new publication. This will be supplied from now on as part of the ArcScan Program Disc, along with the indexes to all the other Acorn manuals. The price for ArcScan III remains unchanged at £12.95 for RISC User subscribers (RRP £15.95) inc. VAT. Product code is PAS3.

If you already have a copy of ArcScan III (version 0.61 or later) then you can update your Acorn manuals indexes with the *ArcScan Manuals Upgrade* (code PAM1) price £3.45 to subscribers (RRP £4.45). This includes the indexes for all the RISC OS 3 manuals including the new PRM.

If you have an older version of ArcScan you will need to upgrade the software. The *ArcScan III Upgrade* (code PASU) includes indexes to all the Acorn manuals as well as the ArcScan III software and costs just £4.75 inc. VAT to subscribers (RRP £7.95).

We can also supply *ArcScan Library Disc 1* (code PAL1: covers BBC Acorn User, Micro User now Acorn Computing, and Archimedes World), and *ArcScan Library Disc 2* (PAL2: covers BEEBUG and RISC User) at £7.95 each inc. VAT (RRP £9.95). Upgrades to Library discs cost £3.45 each (RRP £4.45 each) inc. VAT. Codes are PAU1 and PAU2.

When ordering upgrades it is essential that you return your original disc (or copy of invoice) as proof of purchase. Post and packing is £2 on ArcScan III and ArcScan III Upgrade, £1 on each of the others. Reduced prices apply if you purchase a Library Disc at the same time as purchasing ArcScan III - please enquire for details.

2. Wimp Programmer's Toolkit

The latest version of Acorn's FormEd template editor is now being supplied under licence as part of the *Wimp Programmer's Toolkit*. If you already have a copy of this product we can provide you with an upgrade to include FormEd 1.26. To obtain this you must return your original *Wimp Programmer's Toolkit* disc, together with payment of £2 to cover handling costs, to RISC Developments Ltd. Mark your package *WimpKit Upgrade*.

The *Wimp Programmer's Toolkit* provides a collection of some twelve applications which form a vital set of tools for those writing, developing and debugging Wimp programs. It costs just £14.95 inc. VAT (RRP £19.95) plus £2 p&p.

WELCOME

As this editorial is being written we welcome Nick Mellor as Technical Assistant within the Publications Department to work on RISC User magazine. Nick brings useful expertise with C and with MS-DOS as well as considerable experience with the Archimedes range.

M.W.

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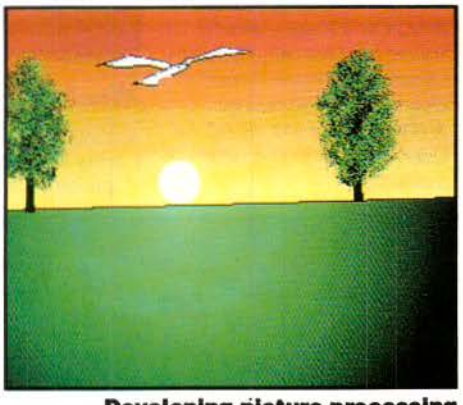

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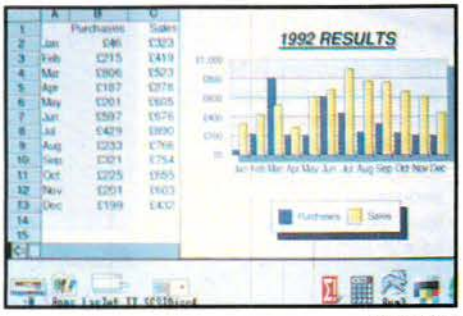

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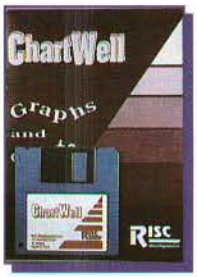
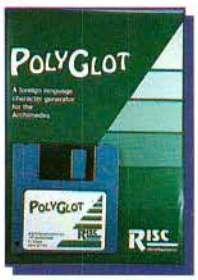
ChartWell



ChartWell is a comprehensive but easy-to-use chart and graph package providing bar charts, pie charts, line graphs, scatter graphs and polar plots with a wide variety of types and many user selectable features. Import data from other files in standard formats; export in Draw file format. Flexible data selection and ordering; useful 'save options' feature.

Members' Price
£24.95 inc.Vat

Polyglot



This is a highly flexible package which can be readily customised to the needs of the user. PolyGlot allows you to access all the characters not normally found on the keyboard from simple user defined windows; ideal for word processing, DTP work etc. in foreign languages. Can also be used for other groups of special symbols (e.g. mathematical). Full printer support.

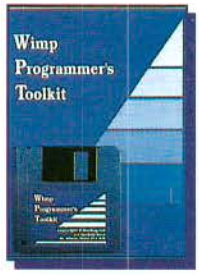
Members' Price
£14.95 inc.Vat

ArcScan III

ArcScan is a well established computerised indexing system. ArcScan III comes complete with indexes to all Acorn manuals (including the new RISC OS 3 Programmer's Reference Manual). Separate Library discs cover Acorn User, Acorn Computing, Archimedes World, RISC User, BEEBUG (upgrades available).

Members' Price
ArcScan **£12.95**
Library Discs **£7.95**
prices inc.Vat

Wimp Programmer's Toolkit



This is a collection of 12 multi-tasking applications to assist in the development and debugging of Wimp programs written in Basic. Ideal companion to the book Wimp Programming for All.

Members' Price
£14.95 inc.Vat

File Handling for All by David Spencer and Mike Williams

This book covers in some detail all the principles and techniques required to program file handling applications in Basic including sequential files, indexed files, file and record pointers, search and sorting.

Members' Price
Book **£9.95**
Disc £4.75, Book + disc £11.95

Wimp Programming for All by Lee Calcraft and Alan Wrigley

This book provides a comprehensive introduction to the many details of Wimp programming in Basic, dealing with the Wimp poll loop, windows, icons, menus, file transfers, outline fonts and much more.

Members' Price
Book **£12.95**
Disc £4.95, Book + disc £14.95

News

IMAGES OF IMAGERY

Palette Studio, producer of *Imagery* (reviewed in RISC User 6:3), has announced low cost ImageArt clip art packs. Users can mix and match from a 20 disc set which includes illuminated lettering, high resolution colour scans and paint by numbers pictures for children to colour in. Each five-disc pack costs £5.00. Imagery itself is now available with a site licence for £269.85, and additional manuals can be purchased in packs of five for £7.50. For more information contact Palette Studio at 108 Smug Oak Centre, Lye Lane, Bricket Wood, Herts AL2 3UG, tel. 0923 894355.

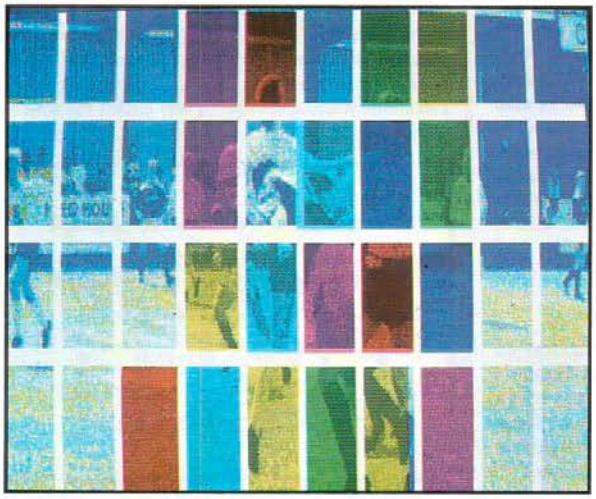


Image processing with Imagery

For more information contact State Machine at Advanced House, 75 Upper Wellington Street, Luton, Bedfordshire LU1 5AA, tel. 0582 483377, fax 9582 480833.

GAMES UPDATE

Aldebaran and *'Ego: Repton 4'* are now available, and promise to keep games addicts amused for many hours to come. *Aldebaran*, produced by Arc Angels Software in Switzerland provides a combination of Zarch and Elite which is already proving popular despite its price of £34.90 inc. VAT. *Ego: Repton 4* is the latest, and according to its producers Superior Software, the cleverest and most puzzling of all Repton games to date. It costs £24.95 inc. VAT.

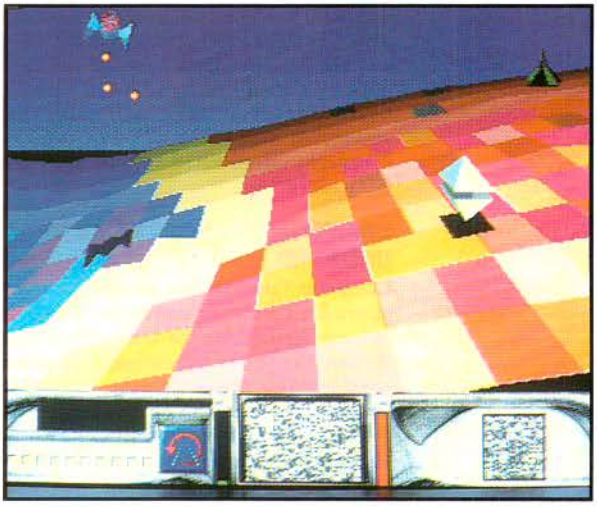
Latest mega-game to hit the Arc is *Hero Quest*, ported from the PC world by Krisalis Software. This is a fantasy adventure game where you explore the magical underground world of Morcar. Hero Quest is priced at £29.99 inc. VAT, and all three games are available through dealers, including Beebug Ltd.

STATE MACHINE STEPS UP THE COMPETITION

State Machine has released an upgrade for its G8 colour card (see review in RISC User 6:3) to allow full animation compatibility of 16-bit Replay decompression sequences in new true 32768 colour modes. The *TrueView* application allows 24-bit clear files to be loaded, converted and displayed automatically. It allows panning and scaling of images larger than the screen and will cope with all formats of clear files. In addition, Acorn's *ARMovie* application is also supplied under licence with some sample clear files.

The upgrade is available to purchasers of the G8 card for an extra £30.00 ex. VAT, but as a special offer to existing G8 users the 16-bit upgrade is available for £20.00 ex. VAT (inc. p& p).

A further enhancement has been made to the G8 allowing *all* TV broadcast modes (modes 12/13 etc.) to be displayed full size on any monitor. All G8 cards now include this feature as standard. Existing G8 cards can be upgraded for £10.00 ex. VAT, but the cost is included with the 16-bit upgrade.



Aldebaran

THE ULTIMATE IN PODULES

HCCS Associates has announced a new system of so-called MicroPodules which enhances the expansion capabilities of many machines in the

Archimedes range. Taking advantage of the latest technology, HCCS has managed to design a host board which accommodates much smaller podules than usual. For example, the *Ultimate MultiPodule*, for the A3010, A3020 and A4000 will house up to three *MicroPodules* (interfaces). Thus an internal hard drive, digitiser and SCSI interface can all be added to the MultiPodule. MultiPodules are also available for the A300/A400/A5000 ranges to accommodate the same MicroPodules.

The MultiPodule costs approximately £40 (depending on host), and MicroPodules for a Colour Video Digitiser, HiVision Digitiser, Analogue Port, SCSI Card and laser Express are already available at prices from £29 (analogue port) to £249 (Laser Express). HCCS expects to release further MicroPodules in due course, and is also talking to other hardware developers with a view to versioning their hardware in MicroPodule format. We hope to report in much more detail in a future RISC User on all these developments. HCCS Associates Ltd. is at 575-583 Durham Road, Gateshead, Tyne & Wear NE9 5JJ, tel. 091 487 0760, fax 091 491 0431.

GRANNY'S GARDEN IS BACK

One of the most popular educational programs on the 8-bit BBC micro was *Granny's Garden*. Granny's Garden achieved almost legendary status, and now a new reincarnation is available from 4Mation. There is also a supplementary Granny's Garden Resource Pack complete with a full set of activity sheets and an art disc. There is also a special information disc entitled "The making of Granny's Garden". This emphasises some of the features of the new program which 4Mation believe will add a new dimension to animation in educational software. Granny's Garden costs £24.50 ex. VAT, site licence £49.00 ex. VAT, and the Resource Pack costs £15.00 ex. VAT. A demo version of Granny's Garden is also available on receipt of a blank 3.5" disc. For more information contact 4Mation, 14 Castle Park Road, Barnstaple, Devon EX32 8PA, tel. 0271 25353, fax 0271 22974.

COMPUTER CONCEPTS GETS UPDATED

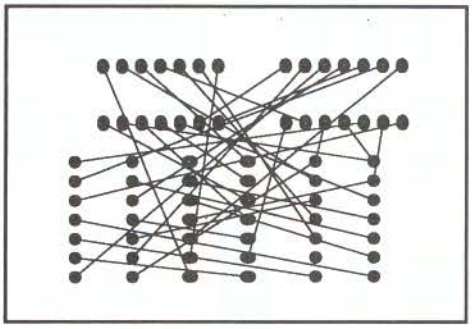
Computer Concepts has announced a number of upgrades to recent products. There is a free software update for the *ColourCard* which gives the user the option to configure the screen update speed to 25Hz, rather than the default 12Hz. This should improve the use of the card for animations and fast screen movements, though there is a trade off with computer processing speed. There is also a new A3000 version of the board.

CC also says that the FaxPack file transfer and answer phone facilities (see review in last month's RISC User) are now available as a software and EPROM upgrade free to existing users.

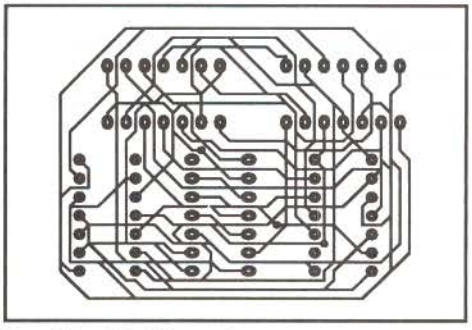
Last, but not least, there is an ArtWorks *Viewer* which enables ArtWorks files to be displayed on screen without the presence of ArtWorks itself. This is now included as part of the ArtWorks package, but a free copy can be obtained on request from Computer Concepts. The Viewer can be distributed without charge enabling users to pass on ArtWorks files to others. Computer Concepts are at Gaddesden Place, Hemel Hempstead, Herts HP2 6EX, tel. 0442 63933, fax 0442 231632.

SILICON VISIONS' NEW ROUTING SOFTWARE

Silicon Vision has announced that the new PowerROUTER add-on is now ready for its ARC-PCB circuit design package. It has been developed to provide full 100% Rip-up Retry autorouting. This is a significant improvement over ARC-PCB's built-in autorouters, and can generate 100% automatic routing results for any circuit for which a physical solution exists to the routing problem.



Original Rats-Nest design



Double-sided board

Silicon Vision has also announced *Alpha-Tracks* providing a complete electronics teaching course based on the company's popular ARC-PCB design software in conjunction with the Unilab Alpha System Electronics modules. The course has been designed for Key Stage 3 (age 13+). The price of Alpha-Tracks is £95 for a site licence with full photo-copying rights. The ARC-PCB software is also needed.

Contact Silicon Vision at Signal House, Lyon Road, Harrow, Middlesex HA1 2AG, tel. 081 861 2173, fax 081 247 5169.

CLARES HAS IT ALL

Clares Micro Supplies took the opportunity to give advance details of a host of new and updated products at BETT. *Typographer* is a detailed mapping package for the geography curriculum. It allows accurate maps to be created, with all the symbols, contour lines and other features to be expected, with the added advantage of providing 3D views of the mapped landscape. Typographer is expected to cost £79.95 with a projected release in April.

NightSky is another completely new application in the form of a versatile and comprehensive astronomy package. It draws star maps for any place on earth, and at any date and time showing stars down to magnitude 7.55 (26104 stars). It also copes with the moon and planets, and will show lunar and solar eclipses. NightSky is expected to sell for £79.95 and be ready soon.

Two more new releases on the way are *Plot*, a flexible data manipulation and presentation package working either from data or from a formula, again priced provisionally at £79.96. *Serenade* is a new Desktop MIDI sequencer expected very soon at £135.00.

Existing software is also being upgraded with the expected release of *Rhapsody 3* £99.95, May 1993), *Schema 2* (£135.00, summer 1993), *Knowledge Organiser 2* (£99.95, April 1993), *ProArtisan 2* (£135.00, summer 1993).

For more information on all Clares' products contact Clares, 98 Middlewich Road, Northwich, Cheshire CW9 7DA, tel. 0606 48511.

STALLION SOFTWARE - LEXICON

Lexicon is a personalised dictionary designed to help in the learning of a foreign language, either in conjunction with a teacher or as a self study course. It provides a computerised notebook on the Desktop which will develop and grow as the student progresses. At present, Lexicon caters for students of French, German and Russian, and costs £40.00. Equivalent language dictionaries are available as optional extras at £20.00 each (ex. VAT in both cases). For more information contact Stallion Software Ltd., Arundel House, Arundel Road, Camden, Bath BA1 5JX, tel. 0225 483236.

TELETEXT UPDATE FROM IVORYASH

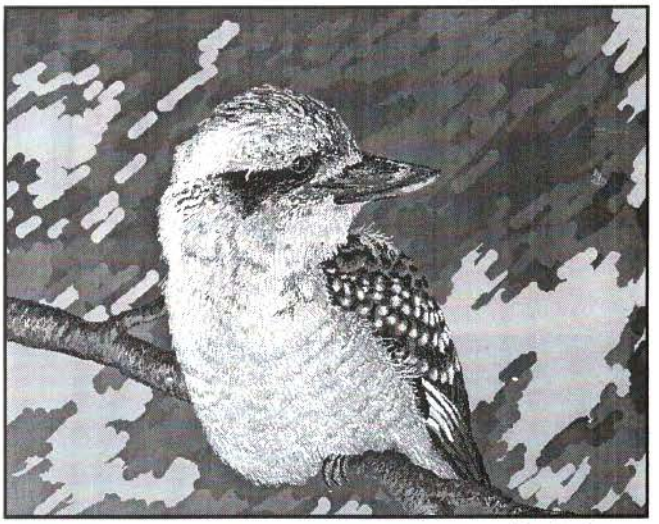
With the new teletext franchise for ITV and Channel 4, the multi-tasking teletext software from Ivoryash no longer works 100% correctly on ITV and Channel 4. Existing customers can receive a free upgrade to fix the problems by returning their original disc with a stamped addressed label to Ivoryash Ltd., 14 Perwell Close, Bredon, Tewkesbury, Gloucestershire GL20 7LJ, tel. 0684 73173.

MATHEMATICAL ASSOCIATION REPORT

The Mathematical Association has published a report entitled *Computers in the Mathematical Curriculum* at a price of £6.75 (members) and £9.95 (non-members). The report covers primary and secondary age ranges, including a separate chapter on the 16-19 age group. There are also general chapters on using a computer and teaching maths with a computer. There are appendices on logo, Basic, spreadsheets, graphics, functions and recursion. The report runs to 173 pages including index and is available post free from The mathematical Association, 259 London Road, Leicester LE2 3BE, tel. 0533 703877.

TEKOA GRAPHICS - ART20

If you thought there weren't enough painting packages on the market, ART20 from newly formed Tekoa Graphics is one more competing for attention. Tekoa claims that that ART20 offers facilities comparable with the most expensive painting applications but at a budget price of £65 (all inclusive). ART20 works in all Desktop modes, uses and creates standard RISC OS sprites, handles up to four screens simultaneously, and has a comprehensive list of options. Tekoa Graphics is also offering a colour print service using a Canon BJC-800 to print at 360dpi at up to A3 size. For further information contact Roger Amos, Tekoa Graphics, 16 Murray Road, Rugby CV21 3JN, tel. 0788 571434.



Kookaburra produced with ART20

APRICOTE STUDIOS - PROPHET

Apricote Studio's accounting package Prophet (see review in RISC User 5:8) has been selected by Acorn New Zealand to complement the A4000 Home Office system. Prophet has been recently updated and is available in different versions for Australia, Canada, Netherlands, New Zealand and the UK. Prophet costs £170 ex. VAT for the UK version. For further information contact Apricote Studios, 2 Purls Bridge farm, Manea, Cambridgeshire PE15 0ND, tel. 035 478 432.

CD-ROMs - The Ultimate Add-On?

Lee Calcraft takes a look at what is involved in accessing CD-ROMs on the Arc.

CD-ROM is an exciting new arena for Archimedes users, offering a rapidly expanding range of multimedia discs, each holding up to 600Mb of data in a read-only format (enough space for the full text of over 1000 novels). In previous issues of the magazine (5:7, 6:1 and 6:3) we have reviewed a variety of CD-ROMs. Here we take a closer look at the practicalities of upgrading your Archimedes to read these revolutionary discs.

Figure 1. Archimedes with Cumana CD-ROM player, and CD-ROMs

SAY IT WITH SCSI

To access CD-ROMs on the Archimedes you need a SCSI interface (short for Small Computer System Interface, and pronounced *scuzzy*), as well as the CD-ROM drive itself. This is a fast interface capable of transferring data at up to 4Mb per sec. Only the Acorn A540, and the Acorn Risc_iX UNIX machines are currently supplied with a SCSI interface as standard, but it is possible to upgrade pretty well any other RISC OS machine, with an add-on card. A number of companies supply suitable interfaces, including HCCS, Morley, Oak and Acorn themselves (further details appear at the end of the article).

As you may be aware, a SCSI port can be connected to a whole host of different devices - such as hard disc drives, tape streamers and other peripherals. Moreover, because you can daisy-chain these devices, you can hang a whole lot (up to seven) onto just one interface. Daisy-chaining simply means that each device has two SCSI sockets. The first device is connected directly to the interface, while the second socket is used to link it on to the next device, and so on. The last device in the chain has a terminator plug (see fig. 2).

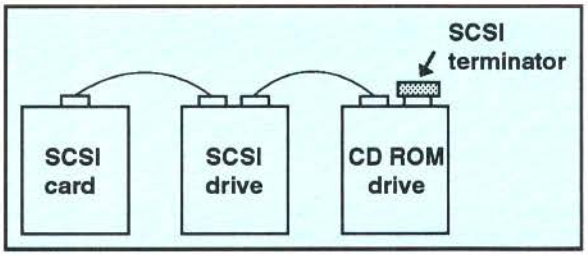


Figure 2. Connecting SCSI devices

ENTER THE CDFS

If you are using an Acorn card you will need to ensure that the ROM-based software supplied with the board contains a recent version of CDFS (CD Filing System). You will need version 2.1 or later in order to get the best from video clips in Acorn Replay format. To check your version, just press F12 from the Desktop, and type:

```
Help Modules
```

If the CDFS module is not present, or is only present in an early version, you will need to upgrade (contact your supplier).

Once you have a sufficiently recent version of CDFS, and a CD-ROM drive plugged into the SCSI port, you should see the CDFS icon at the left hand side of the icon

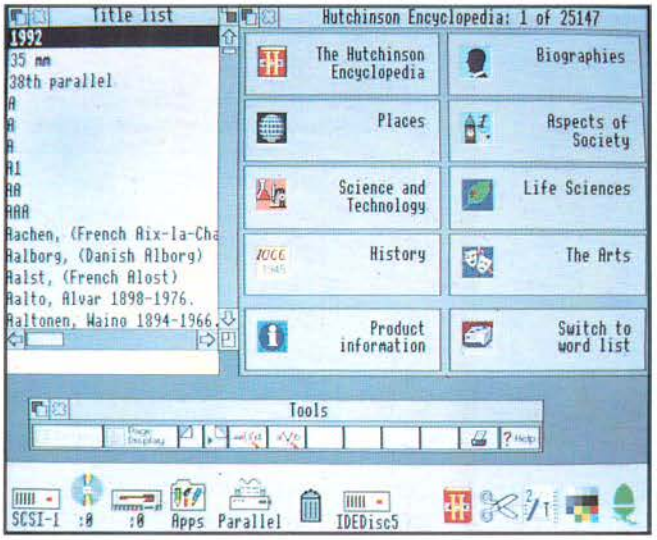


Figure 3. The Hutchinson Encyclopedia

designed for the 8086 family of processors. You may be able to run them using the Emulator however - though database searching and so on will tend to be very slow. A better solution to the PC CD problem is the use of RISC OS front ends. A growing number of companies prominent in the PC CD market are authoring RISC OS front ends for their CD software. This is usually supplied on floppy disc, and enables the user to access the corresponding PC CD directly from the RISC OS Desktop, just as if it were a native RISC OS product. Both the Times and the Hutchinson Encyclopedia (fig. 3) have adopted this approach (reviewed in RISC User 6:3 and 6:1 respectively).

bar along with your other drives. Clicking Menu over this allows you to configure both the number of drives connected, and the size of the directory buffer. This should be set to somewhere between 16 and 64K.

USING THE FILER

If you now slip an Archimedes CD-ROM into your drive, and click on the CDFS icon on the icon bar, you will get a directory display. It will be just like the directory display of a hard disc, except that there may well be many more objects per directory, and it will typically take longer before the display appears, because CDs are much slower devices than hard discs. As a comparison, a 600K datafile which takes 1.5 secs to load into Edit from my SCSI hard disc takes around 5.5 seconds to load from CD.

You can equally well open a directory viewer on a PC CD-ROM. The only difference is that, since the Filer cannot cope with filenames longer than 10 characters, all those which are longer than this (e.g. LONGFILE/EXE) will be truncated.

Of course, you will not always be able to make sense of the contents of PC files. PC executables for example (i.e. programs) are

Figure 4. Acorn's Multimedia Expansion Unit

PLAYING AUDIO CDS

Before there were CD-ROMs there were audio compact discs, and CD-ROM readers are generally capable of reading these discs. Most CD-ROMs have a stereo output socket, and often a volume control as well, and it is possible to use the CD-ROM drive as a CD player. To this end, Acorn supply a neat Desktop application *CDPlayer* (fig. 7) for controlling the beast. This provides all

the features normally associated with a CD player, including random track playing, track selection etc. - though it is somewhat less intuitive to use than it ought to be. The display includes a numeric keypad for track selection, fast forward and reverse, and even an eject button.

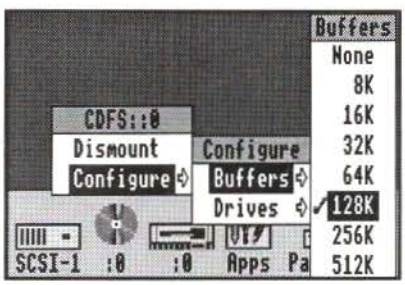


Figure 5. CDFS drive Menu

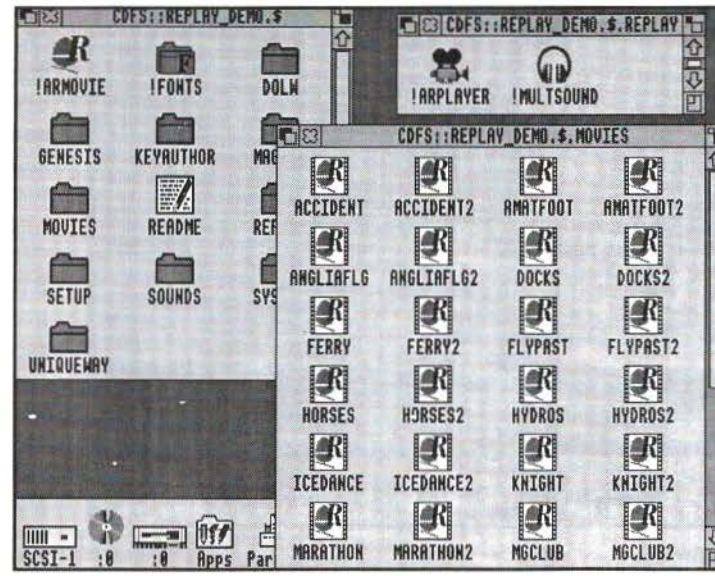


Figure 6. Opening a directory viewer on a CD-ROM

CHOOSING A CD-ROM DRIVE

A number of companies supply CD-ROM drives suitable for use with the Archimedes, including Cumana and Oak. Typically a drive will cost around £400+VAT. But I would expect prices to fall in the near future. Certain drives have a small RAM cache which helps to prevent bottlenecks in data transfer rates, and although these cost a little more, there are significant improvements to be had when using Acorn Replay for example.

But before you buy, it is well worth considering a brand new product from Acorn. The Multimedia Expansion Unit (fig. 4), which was launched at the BETT Show on 20th January, costs very little more than a conventional CD-ROM drive, but offers a great deal more.

Firstly the Expansion Unit contains a Sony double speed CD drive which can access data both at the standard 150Kb/sec, but also at 300Kb/sec. This is ideal for full motion video, where fast data transfer rates are important. Secondly it is capable of reading multi-session Photo CDs (on a standard drive, you can read only the first group of photos laid down in the Philips Photo-CD format - this may include all the photos on the disc, or just the first - depending on the whim of the operator preparing the disc).

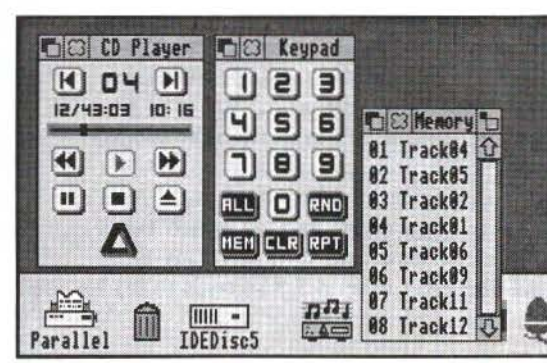


Figure 7. Acorn's CDPlayer software.

Thirdly, the unit contains two further expansion bays, capable of housing extra CD or magneto-optical drives, and contains a preamplifier and mixer for controlling the audio output from the housed drives and the computer itself. There is even room within the case for a third party audio amplifier. Acorn hope to have the unit in stock by the time you read this.

Contacts:

Acorn Computers	0223 254 254	Cumana	0483 503121
HCCS	091 487 0760	Morley Electronics	091 257 6355
Oak	0274 620 423		

CIA Factbook	Allied Interactive
Creepy Crawlies	MDI (Media Design Interactive)
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Frontier 2000	Cambridgeshire Software House
Grooves	MDI
Hutchinson Encyclopedia	Attica Cybernetics
Image Warehouse	MDI
Ma Ville	Oak Solutions
NASA Planetary Images	Spacetech
Really Useful CD-ROM	APA Multimedia
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The Canon BJ200 Printer and CC Turbo Driver

Mike Williams assesses the latest printing package likely to seduce the Archimedes user looking for quality.

In this review we will be looking at two products: the Canon BJ200 bubble jet printer, and Computer Concepts' updated Turbo Driver. These are available as one package from Computer Concepts. The printer has some similarities to Canon's BJ10e (reviewed in RISC User 4:4), and I also reviewed CC's Turbo Driver for this printer in RISC User 5:10.

The Canon BJ200 printer as supplied by Computer Concepts

THE CANON BJ200

This latest bubble jet printer from Canon is a most attractive device. Having used a BJ10e for some time now I was familiar with the general concept, but this printer is very appealing. It is a little like taking the BJ10e, standing it on end and fitting the optional sheet feeder, and then gently squashing the printer to about two thirds its original height.

The new printer, in a warm light grey finish, is a much chunkier beast than its predecessor. It occupies a space 34.7mm wide by 19.3mm deep on you desktop, more from back to front if the paper guides are extended. The height is 17.3mm. Unlike the BJ10e, the BJ200 has a built in power supply, and thus does not offer the portability of its predecessor.

The main control buttons are situated on the top surface of the printer, which also has a flap covering the DIP switches, a convenient location from the user's point of view. A full width flap at the front can be opened for access to the print cartridge. This looks identical to the BJ10e's BC-01, but is designated BC-02.

The sheet feeder will accept up to 100 sheets of A4 paper (or smaller), and there is also a setting for using envelopes (up to 10) and a corresponding *envelope* mode (set from the top control panel). There is also a lever, above the print cartridge, to control the distance of the printhead from the paper (two settings, for normal or thick paper).

OPERATION

The BJ200 is capable of operating in two main modes: BJ10e or LQ. The choice is determined by one of the DIP switch settings. I used the BJ10e mode, and the corresponding printer driver for this printer under RISC OS 3.1.

The BJ200 offers three print qualities, for text:

HS	High Speed Draft	248cps
HQ	High Quality	173cps
SHQ	Super High Quality	124cps

Using the RISC OS 3 printer driver you can only configure this to operate to Draft (HS) or NLQ (HQ) - it would appear that super high quality text printing is not achievable with the standard drivers. As with the BJ10e, this printer cannot cope with italics, but most other style requirements are there, even if not all easily controllable via the RISC OS printer driver system.

I do use text printing (with DeskEdit 2) quite frequently, and the quality from the BJ200 is every bit as good as that of the BJ10e, if not slightly better. As far as speed is concerned, the BJ200 is faster, as Table 1 shows. Graphics printing quality is also noticeably better with the BJ200 compared with the BJ10e, with 360x360dpi, using small half-tones, giving excellent results.

	BJ10e	BJ200
Draft text	53	25
NLQ text	53	25
360x360 graphics	100	90
180x180 graphics	100	45

Table 1. Print times in seconds (Acorn Driver) - one page of text, one page of Draw format graphics in Ovation

COMPUTER CONCEPTS' TURBO DRIVER

The idea behind CC's Turbo Drivers was explained in RISC User 5:9. To recap, CC provides a new cable to connect computer to printer and a new printer driver. This handles all printing in graphics mode (even text printing is converted to an outline font), rendering any graphics directly. The principal advantage is the built-in buffering/queueing so that your system is available for use after a relatively short period, while printing continues in the background.

The Turbo Driver has now been updated from the original designed for the BJ10e alone to cater for the BJ200 as well. To this end a BJ200 driver is now included on the disc supplied. In use the results much as I would expect (see Table 2).

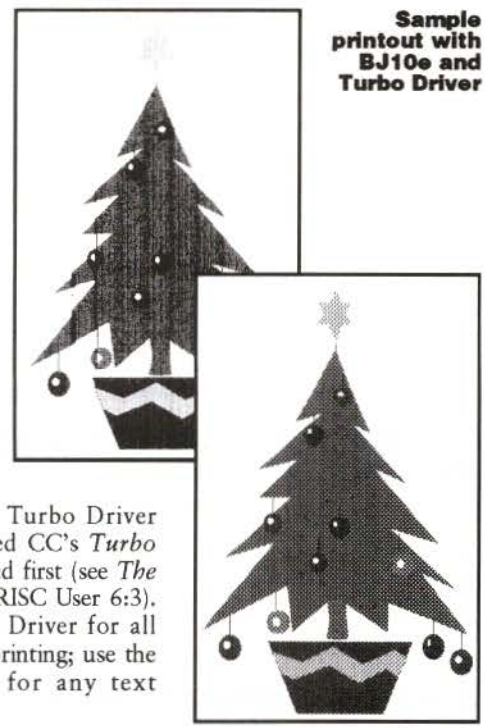
	BJ200	Release time
Draft text	40	20
360x360 graphics	43	15
180x180 graphics	43	15

Table 2. Print times in seconds (Turbo Driver) - same tasks as for table 1

The release time is the time after which the computer is available for other work. Comparing the use of the Acorn driver against CC's Turbo Driver gives much the same relative results as in my previous assessment. For text printing, print times with the Turbo Driver are actually longer, though the machine is free sooner. More importantly, text printing is not adequately catered for. You can't use the BJ200's built-in fonts, and the Turbo Driver appears not to recognise any 1st Word Plus codes, which work perfectly well with the Acorn drivers for RISC OS 2 and 3. Because of the use of graphics for all printing, none of the BJ200's three text modes are applicable.

As far as graphics printing is concerned the Turbo Driver appears to win in all respects. It is faster, releases the machine for further work after quite a short period, and the quality of printing seems better. I would say that rendering of colours was more uniform at 180dpi using the Turbo Driver than at 360dpi using the Acorn driver.

As far as I am concerned I much prefer the Acorn driver for text work, and the Turbo driver for any graphics work (and that includes anything using outline fonts). Fortunately it is possible to use both with the same Turbo Driver cable - provided CC's *Turbo* module is loaded first (see *The 80 Column* in RISC User 6:3). Use the Turbo Driver for all your graphics printing; use the Acorn driver for any text printing.



Sample printout with BJ10e and Turbo Driver

Sample printout with BJ200 and Turbo Driver

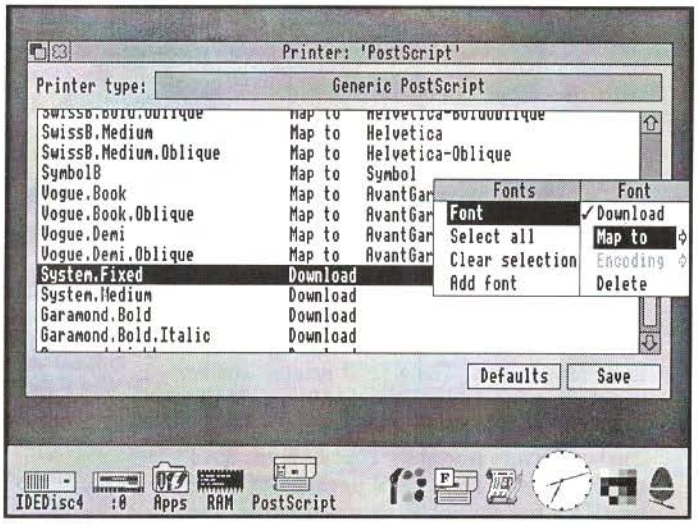
As far as value for money is concerned, I have few doubts. The BJ200 printer can be purchased for as little as £269 (ex. VAT) and you may need a cable on top of that. Turbo Drivers normally cost £49 ex. VAT on their own. Thus CC's package of £299 ex. VAT for the lot is very attractive, and compares very favourably with the £283 (ex. VAT) it would cost to purchase an equivalent BJ10e with sheet feeder and Turbo Driver. I, for one, will be very sorry when the review model goes back to Computer Concepts.

Product *Canon BJ200 printer & Turbo Driver*
Supplier *Computer Concepts Ltd.,*
Gaddesden Place,
Hemel Hempstead,
Herts HP2 6EX.
Tel. 0442 63933
Price *£299 ex. VAT (carriage £10)*

Postscript Printing with RISC OS 3

David Spencer shows how to get to grips with PostScript printing under RISC OS 3.

In RISC User 6:2 we looked at the *Printer Manager* that forms part of RISC OS 3, and showed how to set it up for specific printers. However, as hinted in that article, the rules of the game are somewhat different when dealing with PostScript compatible printers. In this article we will look at driving such printers in detail, but first a word about PostScript.



FontPrint in action

WHAT IS POSTSCRIPT?

PostScript is basically a programming language that is very adept at describing the layout of a page. To print a page to a PostScript printer you don't send the raw data for that page, instead the printer driver 'writes' a special PostScript program. This is then executed by the printer, thus generating the required output. This is very different from dot-matrix and LaserJet type printers where to print in graphics mode you specify the page contents dot by dot.

The idea of a printer with a programming language may seem a bit cock-eyed but it does have one big advantage. Namely, the software generating the PostScript program needs no knowledge of the physical characteristics of the printer, as the PostScript interpreter within the printer can cope with differing resolutions and the like. This means that the same PostScript output file can be printed on a 300dpi laser printer, a 2400dpi photo-typesetter or even on something that isn't even a printer, such as a vinyl cutter. The practical use of this is that you can perfect your masterpiece using a laser printer for drafting, send the same PostScript file to a typesetting house for final output, and be assured that the film you get back will contain what you expect.

Once installed, using a PostScript printer is very similar to any other type of printer, though the installation process is somewhat different. The rest of this article covers this installation in detail.

INSTALLING THE PRINTER DRIVER

Installing the printer driver definition file is very similar to the method for other printers described in the earlier article, in that you open the *Printer control* window and drag the definition in. You can then edit the characteristics of the printer using the *Configure* window. However, with PostScript printers the options available are slightly different. Firstly, there is no control over the resolution, as the printer will always 'do the best job it can'. The only control over quality that you have is a choice between colour and grey output, though if you accidentally set colour for a monochrome printer it will still print OK, as again PostScript can work things out for itself.

Other options available are 'Verbose Prologue' and 'Accent Generation'. The former is used to produce files equivalent to those under RISC OS 2 and should never be needed, whilst the latter allows accented

characters that appear on screen but are not available in the printer to be generated. This is particularly useful for Welsh characters, as there is no ISO8859 standard character set for Welsh. You should only turn this option on if you actually need it, as it can slow things down.

There are also extra options for printing plain text with PostScript. Firstly, you can alter the scale of the text to either fit more on a page or make the print bigger. Secondly, you can choose to print up to five columns across the page. Furthermore, the driver stores the scalings and number of columns for landscape and portrait separately. For example, you can have a single column when in portrait mode, or two columns scaled to 71% in landscape mode - this being very good for long program listings.

FONT MAPPING

It was said earlier that PostScript printers print text using the range of fonts built into the printer. This is in stark contrast to other types of printer where RISC OS creates a bitmap, and the printer doesn't know the difference between a line of text and a picture of your mother's aunt when it is printing it. This means that, with PostScript, when RISC OS wants to print some text in a particular font, it must first of all select the corresponding font in the printer, and if there is no matching font, take some action to create one. In fact, in such cases RISC OS will create a PostScript font from the RISC OS font and copy it to the printer - a process known as downloading.

Unfortunately, there are several hundred RISC OS fonts around, many very similar in appearance, but with different names. A similar situation exists at the PostScript end, where although font names are normally standard, the range of available fonts will change from printer to printer.

It is therefore impossible for the printer driver to map between RISC OS fonts and PostScript fonts automatically. Instead, it works in conjunction with an application called *FontPrint* to decide what course of action to take for a particular font.

When run, *FontPrint* will present you with a window similar to that in figure 1, assuming that you have the printer driver loaded already, and the PostScript printer selected. The title shows the name of the printer and the bar below it the printer type (Generic PostScript, Apple LaserWriter etc.). Below this, each line of the scrollable window shows the fate of a particular RISC OS font. By default this will be a list of certain standard Acorn fonts mapped to PostScript fonts. The length of the list will depend on which fonts the printer has as standard.

When printing a RISC OS font, if it is not in this list then it will automatically be downloaded to the printer. If your printer has additional fonts to the default, or you have non-Acorn fonts with different names, you can add them to the mapping list by going to the *Add font* sub-menu over the list and choosing the appropriate RISC OS font. You then need to select the font by clicking on it in the list and going to the *Map* to sub-menu. This will allow you to select the name of the corresponding PostScript font, or type it in if it isn't listed. (The font supplier should tell you what the corresponding PostScript name is.) As well as choosing the PostScript font, you can also choose the character mapping between the two fonts via another sub-menu. This should be set to *Adobe.Standard* for text fonts, and *Adobe.Special* for symbol-type fonts.

In addition to mapping fonts, *FontPrint* can be used to permanently download a RISC OS font. This term is rather misleading, as it doesn't mean that the downloaded font is there for ever, rather that it is preserved between different printing jobs. This can save time repeatedly downloading a font that you use frequently. To select a font for permanent download, add it to the list in *FontPrint* but choose the *Download* menu option instead of *Map* to.

Once you have set up all the desired fonts, click on the Save button to store the list within the printer driver. If you have opted for a permanent download, this will be done at this stage, and a box will pop up asking you for the printer's password. This

is a number that must be entered before a permanent download can occur, and is by default zero, but may have been changed if the printer is used by many users in a network environment. Either enter the password number to proceed with the download, or close the window to stop it. The same password will be required each time the Printer Manager is started. Clicking on the Default button will restore the default mapping list for the particular printer, but beware - there is no warning and all of your existing list will be lost. Similarly, if you select another PostScript printer whilst *FontPrint* is running, it will change the list to reflect the setting of the new printer, but the old list will be lost if it has been updated and not saved.

A final word about downloading is that it doesn't work on some printers. The problem is that Acorn use a new feature of PostScript that was introduced after many PostScript compatible printers were designed. If this happens you should consult the printer manufacturer to see if you have the latest version of the printer firmware.

USING !T1TOFONT

It is also possible to convert PostScript printer fonts into RISC OS fonts, which can be a good way of expanding your font repertoire. To do this you will need a downloadable Adobe type 1 font. These are commonly found on PC and Macintosh systems. The conversion is done using an application called *T1ToFont* which is supplied on the RISC OS 3 Support disc. Details of how to use this can be found in the RISC OS 3 Applications Guide. Using this method also allows the original PostScript font to be retained, which speeds things up when downloading the font at a later date.

It must be remembered that from a copyright point of view a font is no different from any other piece of software. Therefore, unless a particular font is public domain you must have purchased it in its original format before you can legally convert it to a RISC OS font and use it.

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Techsoft's Perspectives

Alf Yarwood reports on a new 3D CAD package with a novel feature.

Techsoft, which has produced some excellent Computer Aided Design (CAD) packages for the BBC Master and for the Archimedes range, has recently published a three-dimensional (3D) wireframe drawing package for the Archimedes called *Perspectives*. Perspectives is the ideal tool for teaching the elements of orthographic projection and the basis of the co-ordinate geometry applied to CAD.

This package makes full use of all the usual Desktop features, and is fully multi-tasking. All drawing operations are performed under the control of the mouse from within the Desktop in the usual way.

PERSPECTIVES STANDARD SCREEN DISPLAY

When Perspectives is first entered, four views appear providing front elevation, side elevation and plan view in first angle orthographic projection, together with a perspective view in the fourth 'window'. When required, this can be changed into a third angle layout, or any one of the four views can be enlarged so as to occupy the whole screen area. In addition, the perspective view can be changed from the menu to show isometric, cabinet, cavalier or oblique views. The scale of the views can be altered progressively by clicking on the *Zoom Pictorial* icon in the Toolbox, or by using the *Zoom* option in the main menu. Most of the Toolbox functions are duplicated via the menu system so that removing the Toolbox from the screen does not inhibit the choice of function available.

Fig. 1 shows the parts of the drawing screen when Perspectives is first started, with the two windows - *Cursor Coordinates* and *Toolbox* moved to positions on screen where they will not hide the drawing under construction. Note that each view has a drawing origin central to the 'box' formed by the three orthographic planes. The drawing origin determines the position of the co-ordinate point X,Y,Z at (0,0,0). Co-ordinate units are not based on any particular unit of measurement, but will allow the user to determine a position in 3D space with respect to the central drawing origin.

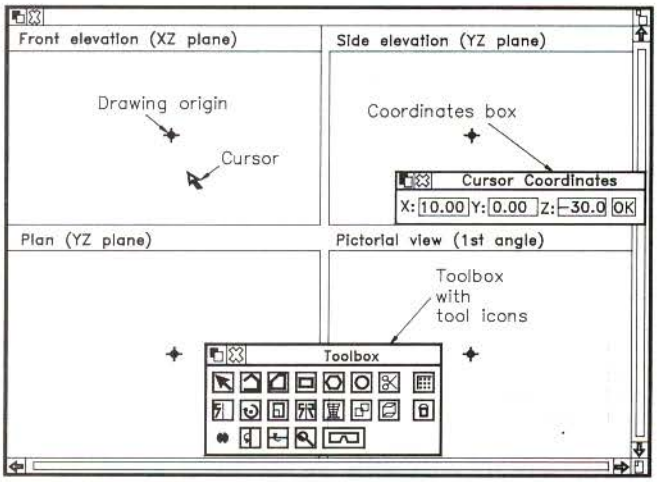

Figure 1. Perspectives' four-view layout with Coord and Toolbox windows

Possibly the most interesting feature of Perspectives is its full-screen stereo image which is obtained by selecting the *Stereo view* icon of the Toolbox (or *Stereoscopic* option from the menu). When a 3D model has been constructed, it can then be viewed in true 3D with the aid of a pair of stereo viewer spectacles provided with the software package. The stereo view can be rotated around its axes on screen, and can be zoomed in or out using the mouse. The stereo image can be further controlled with the function keys.

PERSPECTIVES TOOLBOX

Drawing constructions in any one of the four views, or in a full screen view, are carried out with tools, selected from a

range of tool icons, arranged in the Toolbox window (see Fig. 2). As with all windows in the Desktop, the Toolbox can be moved to any convenient position on screen, can be either hidden behind the main screen or removed completely. As can be seen, most of the icons in the upper row of the Toolbox are drawing tools. Those in the central row are for processes. Three of the icons in the bottom row relate only to the pictorial view. However, the parameters for the process tools must be set by using the menu system (see Fig. 3).

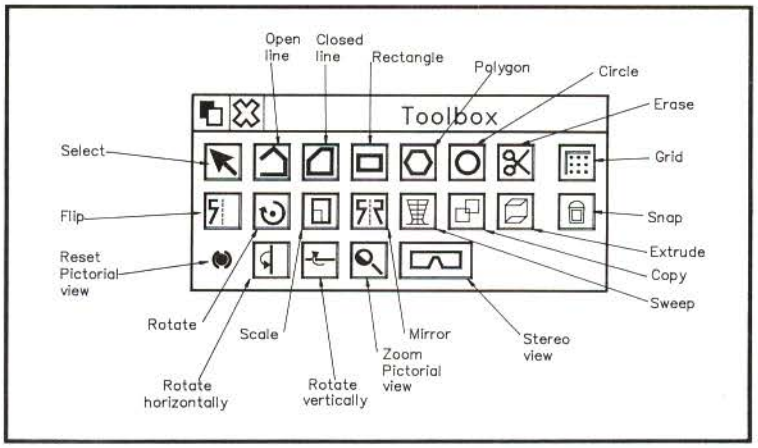

Figure 2. The Toolbox functions

To help in the accurate construction of a 3D model there is a *Grid* pattern (size selectable by the user) which can be invoked when required), and a *Snap* system which can be set from 1 unit upwards allowing objects to be locked on to Snap points.

The *Select* tool is probably the most important. Any part of a drawing, in any view, can be selected and acted upon by any one of the processes - *Rotate*, *Scale*, *Mirror*, etc. In *Select* mode either a single vertex may be selected, or a group of vertices by dragging a box around them. However, this process does seem to lead to excessive redrawing of the object in its four views.

When a process icon is selected, only those parts of the object which have been selected are acted upon. In this manner, parts of a drawing can be Erased, Rotated, Scaled, Mirrored, Swept (to form a solid of revolution), Copied or Extruded. After completion of a process, the Select highlights are removed by clicking within any view. If an error has been made with any process, its effect can be cancelled by selecting the *Erase* icon from the Toolbox.

The plane in which any drawing takes place is determined by the position of the drawing origin, which can be moved in any of the views. As the origin is moved in one view, its position in other views is adjusted, showing the operator the precise 3D position of the origin. Note that the X,Y,Z co-ordinate positions of any points in 3D space are not changed by this movement. The position of X,Y,Z at (0,0,0) is always at the centre of each view. Failure to position the origin properly may result in some parts of a drawing being constructed in the wrong position.

Once the origin has been determined, care is needed to ensure that processes are carried out in the correct direction. For example, if an Extrusion is performed in the wrong view, the part may be incorrectly extruded in an X or in a Y direction (say), rather than in an intended Z direction. Similarly, a part being acted upon by Copy, may end up above (in the Z direction) the part being copied rather than to one side (in the X or in the Y direction) as intended.

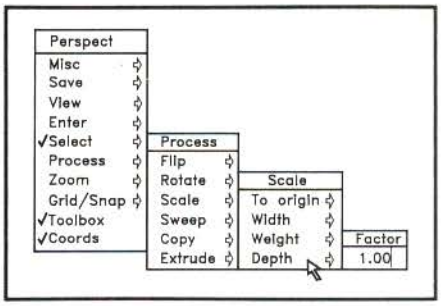

Figure 3. Typical menu system showing parameter setting for a process

USING TOOLS

Take as an example of the re-positioning of the drawing origin, the 3D view of a very simple furniture arrangement given in Fig.4. *First Snap* was set to 5 units from *Grid/Snap* in the menu. To draw the four legs of the table, the drawing origin was first moved in the front elevation view to the position of the "floor" on which the legs would stand. The plan view was then selected for the next stage and the square of the base of one leg drawn with the aid of the *Rectangle* tool. The *Extrude Size* was then entered as 35 units. This was followed by windowing the square base of the leg with the *Select* tool, and then using the Extrude tool in the Toolbox, the leg was extruded to a height of 35 units. The whole leg was then windowed with the Select tool and copied with the Copy tool to obtain the other three legs. The Copy distance had previously been set by entering 40 in the Copy sub-menu box.

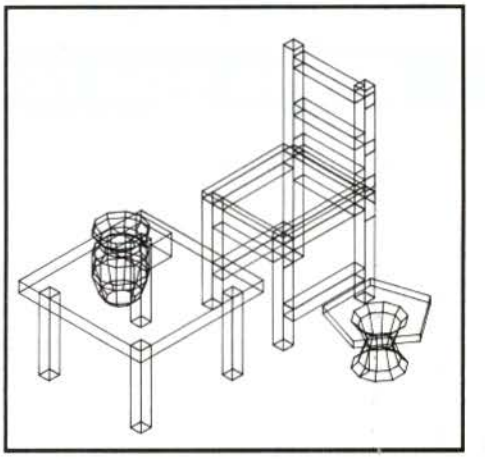

Figure 5. Single-view display showing an isometric pictorial view

Two plots from drawings constructed in Perspective are given in Figures 4 and 5. Note that Fig. 5 is a full view plot of the scene after the Pictorial view has been set to Isometric. Compare the isometric view of Fig. 5 with the perspective pictorial view of Fig. 4.

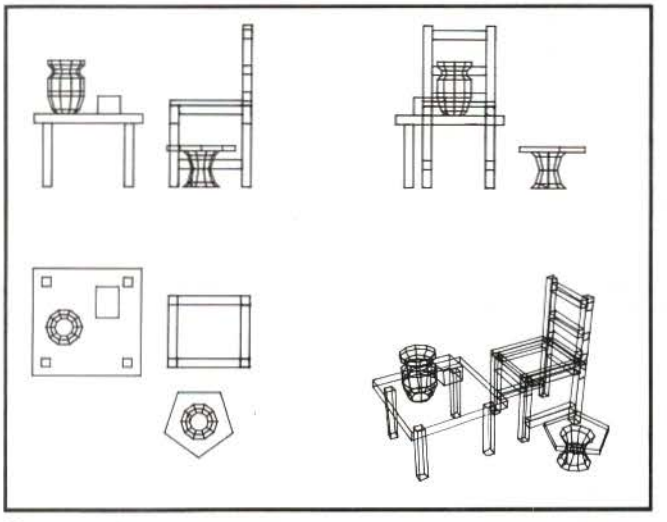

Figure 4.
Four-view display of first angle projection and a perspective view

Perspectives makes plotting and/or printing of drawings very easy. Select *Print* (or *Plot*) from the *Misc* menu and a window appears seeking parameters from the user. For example, when plotting, a choice must be made between A3 and A4 size plots and the plot origin set (the 2D default setting of 0,0 can usually be accepted). Selecting the OKbutton in the window will then start the plot.

CONCLUSIONS

To summarise, Perspectives is an excellent package for demonstrating all the principles of orthographic projection within schools and colleges, and for showing forms of pictorial projection in technical and engineering drawing. The manual , though short (24 pages), is clear and adequate for its purpose, and the package is excellent value for money. However, I would not necessarily consider it as the best choice of package for serious and substantial CAD work, as some of the constructions are a little too unwieldy.

Product *Perspectives*
Supplier *Techsoft UK Limited*
Old School Lane,
Errywys, Mold, Clwyd CH7 4DA.
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ArcFax Fax modem program

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Suitable for use with ArcFax, this modem will send and receive faxes at 9600bps and can be used as a 2400bps data modem with V42bis MNP data compression/error correction. It is very small and can be operated from a battery. Supplied with WinFax (PC hardware), modem lead, carrying case, manuals and AC mains adapter. 5 year guarantee. Computer Shopper best buy. BABT approved.

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Also available Hearsay II full feature comms program from Risc Developments Add £40.
Prices fully inclusive. Free Acorn serial lead with modem, state computer model when ordering.

Disc 2 - MicroSpell 3.XX New Desktop Spell checker
Provides all the features possible in a stand alone spelling checker. Check files, check text in icons, continuous spell check whilst you type, display and correct last error. Edit dictionary. Multiple dictionaries. Supplied with 200,000 words. Fast. *(Owners of MicroSpell 2.XX can upgrade for free).*

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David Pilling, P.O. Box 22, Thornton Cleveleys, Blackpool. FY5 1LR. UK.

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An Open File Manager

This application by Andrew Hersee allows you to keep track of open files and close them by name.

Most of you at some time will have tried to alter or delete a file, only to be given the error message "File open". You will probably have then pressed F12 to get to the command line and typed **Close* to close all the open files. This is not a particularly good solution, especially if another application has a different file open and expects it to stay open. Issuing a **Close* command will cause every file to be closed, not just the one you want to alter. However, help is at hand in RISC OS 3 with a new feature that makes it possible to list all the files currently open. The application listed here, *CloseFile*, uses this feature to present you with a menu of open files, thus allowing you to close files by name and avoid issuing a blanket command.

A second use of the application is to keep track of open files. This can be useful with Obey files, for example. If an Obey file is pending (i.e. there are still some commands in the file waiting to be executed), it will show up on the menu.

CREATING THE APPLICATION

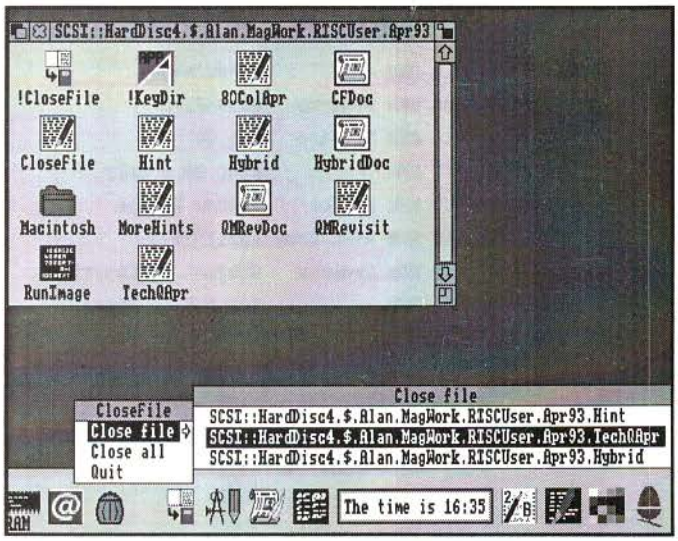
First create an application directory called *!CloseFile*. Inside this directory you should save a file called !Sprites. This should contain a 34x17 pixel mode 12 sprite called *!closefile*, created using Paint. Next you should use a text editor such as Edit and create an Obey file containing the following lines.

```
Set CloseFile$Dir <Obey$Dir>
Iconsprites <Obey$Dir>.!Sprites
WimpSlot -min 32k -max 32k
Run <Obey$Dir>.!RunImage
```

This should be saved as *!Run* inside the *!CloseFile* directory. Finally you should type in the listing below (taking care with the assembler section) and save it as *!RunImage* in the same directory.

USING CLOSEFILE

CloseFile is installed in the usual way by double-clicking on the application's icon. This will place its icon on the right of the icon bar. Clicking Menu will give you a menu from which you may either close all open files (i.e. the same as typing **Close*) or close a single file by name. To close a single file move over the arrow to the right of the *Close File* menu entry. An hourglass will appear and after a second or two a menu will open listing all open files. To close a file simply click on its name. If there are no files open then the menu will simply show *No files open.*



Closing an open file

HOW IT WORKS

Acorn has extended the SWI call *OS_Args* to enable you to find the pathname represented by a file handle. Details of the new call are as follows:

```
OS_Args 7 (OSArgs_ReadPath)
```

On entry:

```
R0 = 7
R1 = file handle
```

```
R2 = pointer to buffer to contain
     pathname
R5 = buffer length
On exit:
Buffer contains zero-terminated pathname
R5 = number of spare bytes in buffer
     after zero terminator.
```

If the buffer was not long enough for the pathname, R5 will hold a negative value indicating the shortfall (and no data will be returned in the buffer at all). This provides a mechanism for finding out how long a buffer is needed.

Unfortunately there is no way of telling which file handles are currently being used, so we have to call the SWI for every handle from 1-256. The code to do this is written in assembler since the process is quite time consuming. The machine code calls SWI OS_Args for every file handle and if the returned pathname is not a null string then it is added it to the menu structure.

```
  10 REM            >!RunImage
  20 REM Program    CloseFile
  30 REM Version    A 1.00
  40 REM            RISC OS 3 only
  50 REM Author     Andrew Hersee
  60 REM RISC User  April 1993
  70 REM Program    Subject to Copyright
  80 REM            Not Public Domain
  90 :
 100 DIM bk% 256,tbk% 1300,mainmenu% 12
8,menu% 6172,indirected% &3000
 110 ON ERROR PROCerror(REPORT$+" (inte
rnal error code "+STR$(ERL)+")")
 120 PROCInitialise
 130 PROCassemble
 140 :
 150 REPEAT
 160 SYS "Wimp_Poll",&81933,bk% TO flag
 170 CASE flag OF
 180 WHEN 2:SYS"Wimp_OpenWindow",,bk%
 190 WHEN 6:IF bk%!8=2 THEN SYS"Wimp_Cr
eateMenu",,mainmenu%,!bk%-64,216
 200 WHEN 9:PROCmenuselection
 210 WHEN 17,18:PROCreceive
 220 ENDCASE
 230 UNTIL quit%
 240 SYS "Wimp_CloseDown"
 250 END
 260 :
 270 DEF PROCInitialise
 280 SYS "Wimp_Initialise",200,&4B53415
4,"Close Files" TO wimp,us%
 290 IF wimp<300 THEN PROCerror("You ne
ed RISC OS 3.00 or later to run CloseFil
e")
 300 quit%=FALSE:name$="CloseFile"
 310 $mainmenu%=name$
 320 mainmenu%!12=&00070207
 330 mainmenu%!16=16*11
 340 mainmenu%!20=40:mainmenu%!24=0
 350 ptr%=mainmenu%+28
 360 ptr%!0=2^3:ptr%!4=menu%
 370 ptr%!8=&07000001
 380 $(ptr%+12)="Close file"
 390 ptr%+=24:ptr%!0=0:ptr%!4=-1
 400 ptr%!8=&07000001
 410 $(ptr%+12)="Close all"
 420 ptr%+=24:ptr%!0=2^7:ptr%!4=-1
 430 ptr%!8=&07000001
 440 $(ptr%+12)="Quit"
 450 $menu%="Close file"
 460 menu%!12=&00070207
 470 menu%!20=40:menu%!24=0
 480 !tbk%=-1:tbk%!4=0:tbk%!8=0
 490 tbk%!12=68:tbk%!16=68
 500 tbk%!20=&301A:$(tbk%+24)="!"+name$
 510 SYS "Wimp_CreateIcon",,tbk% TO myi
con
 520 $tbk%="<CloseFile$Dir>"+CHR$0
 530 SYS "OS_GSTrans",tbk%,tbk%+16,300
 540 mypath$=FNgetstring(tbk%+16)
 550 dir$=""
 560 ENDPROC
 570 :
 580 DEF FNgetstring(I%)
 590 string$=""
 600 WHILE ?I%>31
 610 string$+=CHR$(?I%):I%+=1
 620 ENDWHILE
 630 =string$
 640 :
 650 DEF PROCerror(error$)
 660 !bk%=ERR
 670 $(bk%+4)=error$+CHR$0
```

```
  680 SYS"Wimp_ReportError",bk%,1,name$
  690 SYS"Wimp_CloseDown"
  700 END
  710 :
  720 DEF PROCsavedesktop
  730 desk=bk%!20:BPUT#desk,"/"+mypath$
  740 ENDPROC
  750 :
  760 DEF PROCmenuselection
  770 LOCAL stay
  780 SYS"Wimp_GetPointerInfo",,tbk%
  790 stay=(tbk%!8 AND 1)
  800 CASE !bk% OF
  810 WHEN 0:IF bk%!4>=0 THEN
  820 h%=!(menu%+44+28*bk%!4)
  830 IF h%>=0 THEN
  840 CLOSE#h%:IF stay THEN CALL code%
  850 ENDIF
  860 ENDIF
  870 WHEN 1:CLOSE#0
  880 WHEN 2:quit%=TRUE
  890 ENDCASE
  900 IF stay THEN SYS"Wimp_CreateMenu",
,mainmenu%
  910 ENDPROC
  920 :
  930 DEF PROCreceive
  940 CASE bk%!16 OF
  950 WHEN 0:quit%=TRUE
  960 WHEN 10:PROCsavedesktop
  970 WHEN &400C0:CALL code%:SYS"Wimp_Cr
eateSubMenu",,menu%,bk%!24,bk%!28
  980 ENDCASE
  990 ENDPROC
 1000 :
 1010 DEF PROCassemble
 1020 DIM code% 240
 1030 FOR pass%=0 TO 2 STEP 2
 1040 P%=code%
 1050 [OPT pass%
 1060 STMFD R13!,{R0-R12,R14}
 1070 MOV R0,#1
 1080 SWI "Hourglass_Start"
 1090 MOV R8,#0:LDR R9,menu
 1100 LDR R10,indirected
 1110 LDR R11,size:ADR R0,dummy
 1120 LDMIA R0,{R0-R5}
 1130 STMIA R9,{R0-R5}
 1140 MOV R1,#255
 1150 :
 1160 .nexthandle
 1170 MOV R0,#7:MOV R2,R10
 1180 MOV R5,#0:SWI "XOS_Args"
 1190 CMP R5,#0:BLLT addname
 1200 SUBS R1,R1,#1
 1210 BGE nexthandle
 1220 MOVS R8,R8,LSL#4
 1230 MOVEQ R8,#14*16
 1240 MOVNE R0,#2^7
 1250 STRNE R0,[R9,#-24]
 1260 LDR R9,menu
 1270 STR R8,[R9,#-12]
 1280 SWI "Hourglass_Off"
 1290 LDMFD R13!,{R0-R12,PC}^
 1300 :
 1310 .addname
 1320 RSB R5,R5,#0:ADD R5,R5,#1
 1330 SUBS R11,R11,R5
 1340 ADDLT R5,R5,R11:MOVS R7,R5
 1350 MOVLE PC,R14
 1360 SWI "OS_Args"
 1370 CMP R7,R8:MOVGT R8,R7
 1380 MOV R6,#0:STR R6,[R9],#4
 1390 MVN R6,#0:STR R6,[R9],#4
 1400 LDR R6,iconflag
 1410 STR R6,[R9],#4
 1420 STR R10,[R9],#4
 1430 STR R1,[R9],#4
 1440 STR R7,[R9],#4
 1450 ADD R10,R10,R7:MOV PC,R14
 1460 :
 1470 .indirected
 1480 EQUD indirected%
 1490 .menu
 1500 EQUD menu%+28
 1510 .size
 1520 EQUD &3000
 1530 .dummy
 1540 EQUD 2^7:EQUD -1
 1550 .iconflag
 1560 EQUD &07000101:EQUD no
 1570 EQUD -1:EQUD 15
 1580 .no
 1590 EQUS "No files open"+CHR$0
 1600 ]:NEXT
 1610 ENDPROC
```

OPL for the Pocket Book

Lee Calcraft reviews Acorn's Palmtop Programming Pack.

The OPL programming language was developed by Psion for their Organiser range, and appears in an enhanced form in their Series 3 palmtop. It is one of the features of the Series 3 which are not supplied as standard with the Pocket Book. But Acorn have just launched OPL as an add-on for their clone. It comes on a flash EPROM card, and fills the remaining drive bay in the Pocket Book. The accompanying 320 page manual, which follows Psion's almost to the letter, is well organised and easy to use.

Figure 1. OPL on the Desktop

So what is OPL, and who needs it? The letters OPL stand for *Organiser Programming Language*. It is a sophisticated high level structured language, which is very like BBC Basic in many ways, while at the same time owing something to the influence of C. With more than 200 dedicated keywords it provides ample graphics commands for controlling the screen display, including full support for on-screen windows, a range of string and file handling functions, and even high level database functions - not to mention event-handling functions which allow your programs to multi-task with the suite of resident applications. And if you are having trouble remembering keywords, the OPL Pack automatically provides a searchable database of keywords and their meanings, accessed from the *Cards* icon.

INSTALLATION

Installing the OPL Pack is simple. You just plug the OPL card into the spare drive bay, and switch on. Then call up the Desktop, click on Menu, and move across to Apps, and select *Install application*. Once you have done this the OPL icon will appear on the Desktop. Selecting this (by pressing Enter) takes you directly to the OPL editor. This is a full screen editor with many features of the *Write* word processor. It provides an excellent development environment, and includes facilities like search and replace, as well as the ability to translate and run programs interactively.

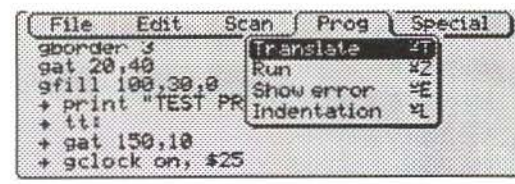


Figure 2. The OPL editor in use

Note the term *Translate*: OPL, as implemented by Psion/ Acorn, is a compiled language. This means that you cannot just type in your program and run it directly, as you can with BBC Basic. An intermediate stage, which Psion call *translation*, must be performed to create a piece of executable code. In practice this is quite painless: the translator can be called up from the OPL editor's Menu, or by the *Acorn-T* key combination. The compiler works quickly, and if errors are spotted you are taken to the appropriate point in the editor so that you can fix the problem. Once translation has been performed, you are offered the option to run the program, and away you go.

A REAL EXAMPLE

To give a feel for the way that OPL works, we will take a real example. The following program demonstrates the way in which procedures are used, and shows one or two graphics commands. When it is run it creates the display shown in figure 4, containing a bordered screen, some plain text, a filled rectangle and a clock.

```
PROC test:
  gborder 3
  gat 20,40
  gfill 100,30,0
  print "TEST PROGRAM"
  tt:
  gat 150,10
  gclock on, $25
  get
ENDP

PROC tt:
  print
  print "We are now in proc tt"
ENDP
```

Figure 3. An Example Program

In a similar way to the C language, OPL programs do not have numbered lines, and must begin with a procedure which is automatically called when the program is run - though unlike C, you can specify its name. In the example, we have called our starting procedure *PROC test*. This begins by drawing a shadowed graphics border around the current window (full screen) - the 3 specifies the type of border.

The graphics cursor is then moved to position 20,40 (the origin is at the top left of the screen, and the full screen is 240 x 80 pixels in size). We then draw a filled box 100 pixels by 30 (the third parameter specifies the type of plot - *set*, *clear* and *invert* are offered), and then we print the words "TEST PROGRAM". Note that this is printed at the text cursor, and so appears at the top left-hand corner of the screen.

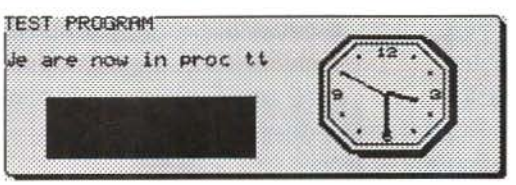


Figure 4. Running the test program

Next we call the second level procedure *PROC tt*. This simply prints a second line of text to let us know that the procedure was successfully called.

Finally we place the graphics cursor at 150,0, and put a clock on the screen. The parameters supplied with the *gclock on* command specify that it should be a large analogue type with a moving seconds hand - yes, the clock is continuously updated without any specific support from the program.

The final *get* in the program just waits for a keypress before the program terminates. If you have run it from the editor, you are taken back there as soon as you press a key.

Once you have successfully translated a program you will see that a second OPL icon appears on the Desktop screen. This is the icon for runnable programs. From here you can directly run any program that has already been translated. You can also install any such program with its own icon on the Desktop, and with its own special keyboard shortcut.

CONCLUSION

As you will appreciate, the OPL Programming Language (as Acorn's pack is called) confers great power and flexibility to Pocket Book users. If there is some application which your Pocket Book lacks, then you can just 'run one up' to fit the bill. Moreover, you can even create special functions for the Pocket Book calculator in exactly the same way. And if you find the keyboard a bit fiddly for programming, then you can use the Arc. Create your program in Edit, and then use the A-Link to translate and run it on the Pocket Book.

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Using ArtWorks

Peter Bond discusses his first experiences in using Computer Concepts' ArtWorks.

After I had first read the ArtWorks Manual I felt rather disappointed: "Is that all there is to it, then?" But I very soon realised that here was a program of great power hidden behind an innocent-looking user interface. However, deciding how to put this power to use in order to draw a particular feature can take a little while: this article shows how layers, conversion into shapes, joining shapes, breaking lines, etc. can be used, in the hope that this will break any mental log-jams in these areas!

One of the first jobs for which I wanted to use ArtWorks was to draw a map (actually 'tracing' from a scanned image); the map had contour lines and I wanted to use shades of grey to indicate the various height ranges as in an atlas. Drawing a map was not new: I had often done this before, using Draw and Draw Plus but, luckily, had never had to do this type of shading. The problem is that two contiguous areas of shading need two identical boundaries on their common border: not too easy before ArtWorks.

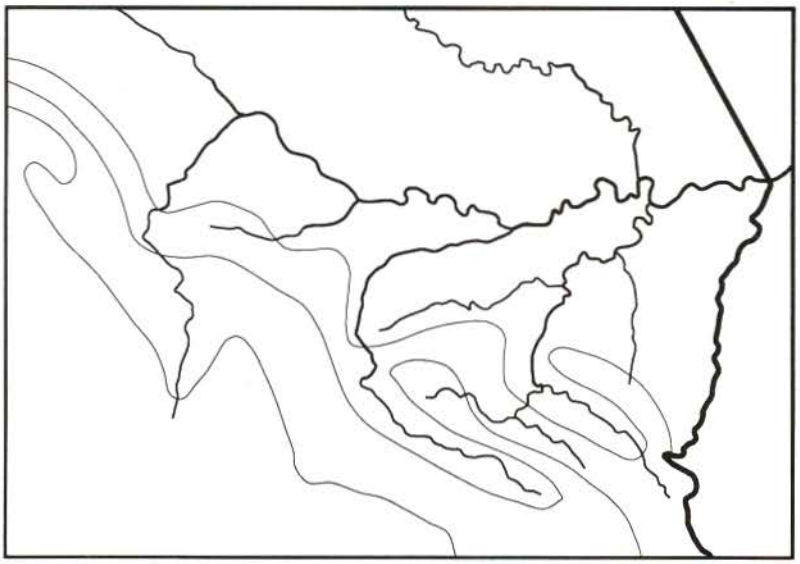
LAYERS

I followed my usual practice of putting the scanned image on the lowest layer, and then drawing the various geographical features on suitably named layers. I have to confess that I did this in the blithe belief that I would be able, later, to do my shading. Luckily, my faith in ArtWorks was justified!

If you have trouble in imagining what a layer is, try thinking of it as a sheet of glass that you draw on; you can draw a different type of feature on each sheet (e.g. roads, rivers, railways). When you have drawn all the features, you stack the sheets of glass together and then you can see the whole map. If you later need a map just of railways you can take out the other sheets. Indeed, it is just because some maps and engineering drawings are drawn rather like this that layers are so called! In ArtWorks, objects on the non-current layers cannot be selected (unless you select *Multilayer*), and as many layers as you like can be made invisible; you will see that this sort of facility makes it much easier to manipulate complex drawings.

SHADING

Back to my map: figure 1 shows a simplified version with just a land border, rivers and contours. For simplicity I have put all features on the lowest (foreground) layer. The contours represent heights of



Original map

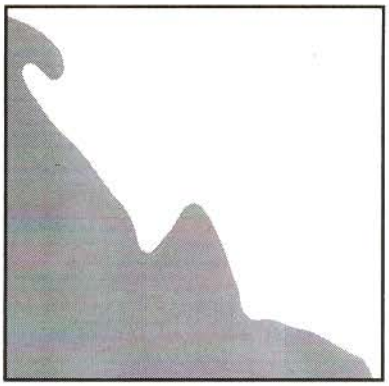
50m, 100m and 150m; I shall shade the four areas deeper shades of grey, with white for the lowest (obviously, I don't have to do anything about that). Let's start with the land above 150m as it is the simplest:

1. Create a new layer called, say, *Shading_1*.
2. Reset *Foreground* to be the current layer.
3. Select the rectangle boundary and the 150m contour.

4. Clone these two objects (menu or Ctrl-K): this creates identical copies superimposed on the originals.

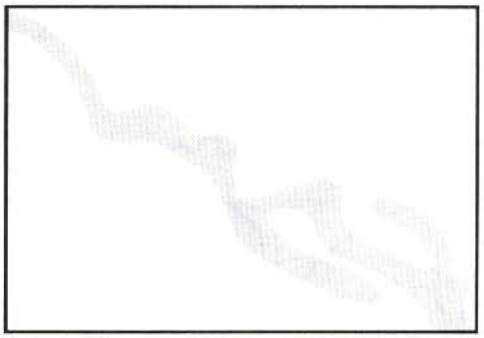
5. Cut the objects (menu or Ctrl-X).

6. Change to the *Shading_1* layer and perform what I call *exact paste* - i.e. paste the objects (menu or Ctrl-V) with the Shift key held down: this means that objects are pasted with their original X-Y positions, and it is vital to this operation (although it is explained in the manual that this is how to move objects exactly between layers, it is well away from the discussion on layers).



First shaded contour

7. At this stage you will see nothing different, but what we have is a copy of the surrounding rectangle and the 150m contour in the new layer.



Third shaded contour

8. Go to the layer menu and edit *Foreground* to make it invisible (keeping *Shading_1* as current layer).

9. Select the rectangle and make it a shape (via *Lines/Shapes* & *Make shapes* menu items): the significance of this is that the object has now lost its 'rectangleness'; it is just an object made of 4 straight lines and can be manipulated as you like.

10. Now (while the ex-rectangle is still selected) pick the *Path Editing* tool and click on one of the sides just where the contour intersects it (zoom to do this fairly accurately).

11. Click on the *Break line* icon.

12. Repeat for the other intersection: the result of this is that the ex-rectangle is now in two distinct sections.

13. Pick the *Select* tool again and click on the top-right corner of the rectangle: you will see that the bottom left-hand corner is not in the selection.

14. Delete the selection - the top-right section.

We now have three lines which have to be made into a shape: the two straight lines are already joined at the bottom left, the other two connections still have to be made:

15. Zoom into one of the junctions, select the contour, pick *Path editing*, and drag the end of the contour to the end of the straight line (it will snap in when it is close enough).

16. Repeat for the other junction: you will probably find that when you make the second junction, the contour will make a smooth curve with the border line - which is not wanted! When this happens, click on Undo, click on the Sharp corner icon and then repeat the drag to close the shape.

17. Finally, use the *Flat fill* tool to fill the shape with an appropriate shade (such as 30% black) and to make the line colour *None* so that the contour line is not visible (which is my preference).

Figure 2 shows the current situation with layer *Foreground* still invisible.

It is, I hope, fairly obvious how to shade another area of ground: make *Shading_1* invisible; create another layer, *Shading_2* perhaps; make *Foreground* visible; select all the objects that form any part of the boundary of the area to be shaded; clone them; move the clones to the new layer; make *Foreground* invisible; go to the new layer and, just as described above, discard the parts of the objects that will not be used and join up the remainder. The result for the ground between 50m and 100m is shown in figure 3. This was a little more complex than the first area as the bounding rectangle had to produce two segments, and part of the land border was also needed.

There is usually no need to keep the shadings separate, and I would now move this last area into *Shading_1* (using *Cut* and *Exact Paste*) and re-use *Shading_2* for the next area between 100m and 150m.

The final map is shown in figure 4 with all three shading areas combined into one layer, which is put at the bottom of the stack (as

otherwise all the map detail would be covered), and with the original contour lines deleted as they are no longer needed (if one were to want them again, they could be reconstructed from the shadings).

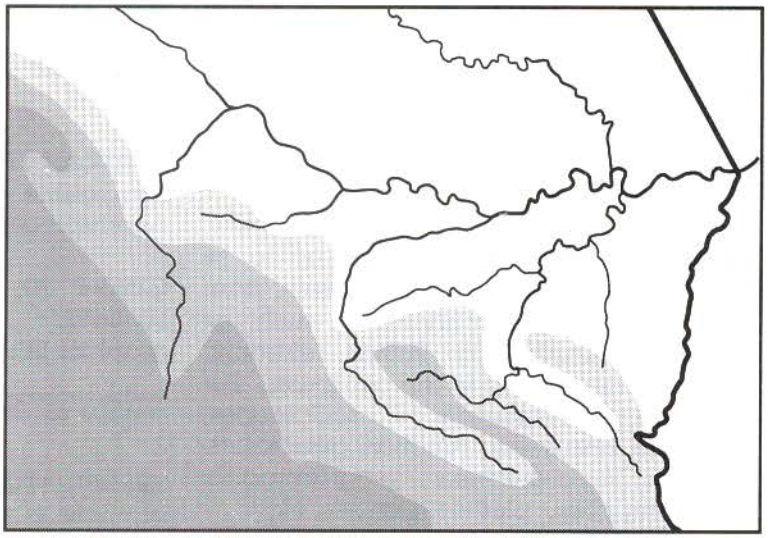
HATCHING

Another method of filling shapes is to hatch them, and I was disappointed not to find hatching in ArtWorks. Although to be fair, it is a technique more likely to be found in engineering drawing programs. However, it can still be done in ArtWorks as shown in figure 5. In fact, this is just one instance of a much more general technique: that of making a window onto an underlying scene just as in Computer Concept's desert scene with palm trees which is viewed through the letters of "Works". Proceed as follows:

1. draw the shape to be hatched (or use an existing shape such as a letter);
2. make a hatching pattern rather larger than the shape (I made the hatching in the example by drawing vertical lines on either side of the shape to be hatched, using blend to fill the space with 12 lines, duplicating this construct, rotating one to 30°, and the other to -30°, and finally grouping them together);
3. draw a shape larger than the hatching (if you use a rectangle or a circle, convert it to a shape);
4. select the shape to be hatched, clone it, select also the surrounding shape, join the two into one shape;
5. change the fill colour to white, and the line colour to none.

The point of the last two steps is to make the outline of the surrounding shape invisible while still leaving a visible line around the hatching area (it also corrects the stacking order). If the surrounding area can be made large enough for its bounding line to be out of the printing area then the cloning step can be left out and the line colour left as black (or whatever). What you cannot do with this technique is to hatch two or more adjacent areas - if I am wrong about this, please tell me because I want to know!

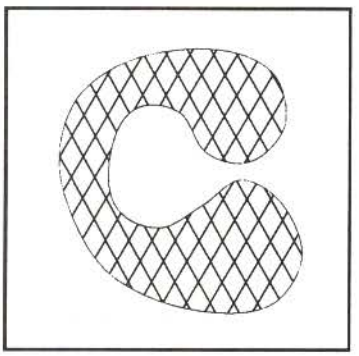
A point about invisible layers is that ArtWorks does not, by default, print them. However, they are exported in Draw file format and this means that, at the time of writing, if you want to print an ArtWorks drawing in Impression and it contains an invisible layer then that layer must be deleted before the export.



Final shaded contour map

TILING

I had a certain amount of trouble when I tried the tiling facility with printing - this was mainly because I had not read the manual sufficiently! Having decided that you want to tile, go to the *Print* dialogue box; click on *Tiling* and and on the appropriate orientation icon. It is now important to click on the *Set values* icon down at the bottom. When you go back to your drawing you will see the red lines that show how the tiles are arranged on your drawing board. The manual does not tell you how much extra is taken by cut marks etc., but now you can measure the size of a printed page (just draw a line and look at its co-ordinates: Shift/F1) and, if you want, reduce the size of your drawing board to avoid having tiles with only a fraction of a drawing on them.



Cross hatching

HARDWARE AND SOFTWARE EXPANSION FOR ACORN COMPUTERS

DUAL RS423 SERIAL INTERFACE - two additional RS423 serial interfaces for communicating with RS423 or RS232 devices eg modems (in order to use bulletin boards), printers, plotters, instruments, etc. Up to four cards can be fitted in a computer.

IEEE488 INTERFACE - enables up to 14 test and measurement instruments, from well known manufacturers such as Hewlett-Packard, Fluke, Philips, Tektronix, etc. to be connected to the computer. For example, voltmeters, oscilloscopes, spectrum analysers, function generators, counters, logic analysers, programmable power supplies, plotters, printers, etc.

16 BIT PARALLEL I/O - provides two separate 16 bit input/output ports. Other facilities include four 16 bit counter/timers, two 8 bit shift registers and eight interrupt inputs. Applications range from measurement and control to high speed data input and output.

12 BIT ADC - provides eight single ended inputs each with an input voltage range of -5 to +5 Volts. Up to 166,000 samples per second can be taken.

STEbus INTERFACE - overcomes the limitation of a maximum of four expansion cards in a computer by enabling the use of industry standard STEbus boards in an external input/output sub-system for measurement and control applications.

SCSI DEVICES - internal and external hard disc drives, magneto-optical removable disc drives, tape streamers etc.

FORTRAN 77 COMPILER - completely compatible with the now discontinued Acornsoft compiler.

GINO-F 3D, GINOGRAF, GINOSURF and HERSHEY+ - the FORTRAN subroutine graphics libraries.

Intelligent Interfaces are Bradly Associates distributor for GINO-F 3D, GINOGRAF, GINOSURF for Acorn RISC OS-based Computers.

TERMULATOR - enables a computer to emulate a terminal from the VT range (VT52, VT102 or VT220) or a Tektronix 4010 graphics terminal.

Termulator a trade mark of Acorn Computers Limited is applied to this product under licence from Acorn Computers Limited.

COMPLETE SYSTEMS - configured to customer's requirements by fitting RAM upgrades, hard discs, expansion cards, etc.

ADVICE - SUPPLY - SUPPORT - Intelligent Interfaces were established in 1981 and have enjoyed a long relationship with Acorn Computers. This places them in an ideal position to advise on, supply and support systems purchased from them.

Intelligent Interfaces Ltd
P O Box 80
Eastleigh
Hants
SO5 5YX
Tel: 0703 261514 Fax: 0703 267904

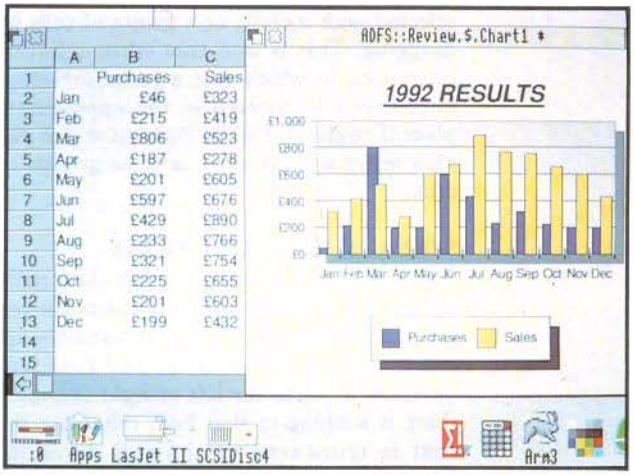
INTELLIGENT INTERFACES

Eureka

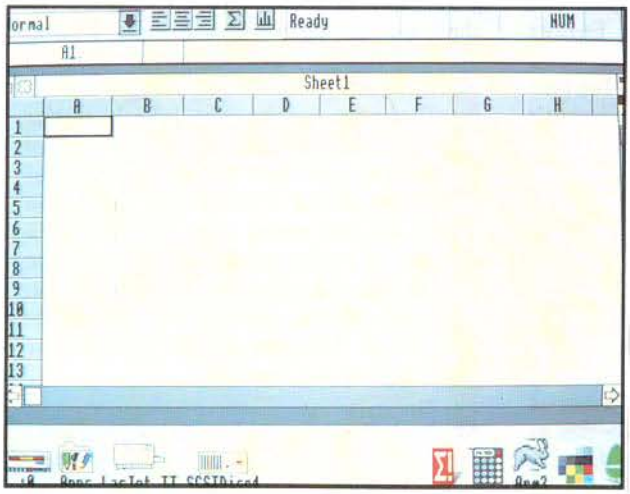
Alan Highet compares Longman Logotron's long awaited spreadsheet with the well established Pipedream from Colton Software.

I have been using Pipedream continuously in my job for 3 years now and find that, while it is an extremely powerful spreadsheet, it lacks an easy to use graphical layout, making it difficult to enter data in the required cell and to present an eye catching report. Pipedream 4 improves the situation with the addition of charts and a slightly easier data entry but it still isn't enough. I tried Schema but found too many features were missing to make it a viable alternative though with the advent of Schema 2 this might possibly change, and Colton Software has also announced Resultz for release soon.

Now comes Eureka from Longman Logotron. This has been advertised for some time but was finally released in December last year. Eureka comes in an A5 binder with two discs. One contains the program along with System files and a fonts directory, while the other contains examples. Eureka installs on the icon bar and requires a minimum of 2Mb. Longman Logotron recommends the use of RISC OS 3 as some functions do not work with RISC OS 2, although they do not tell you which. Eureka is fully RISC OS compliant.



Presenting Eureka's data in chart form



Eureka's spreadsheet layout

Clicking Select on the icon opens a blank worksheet which, as you can see from figure 1, has a separate movable work bar at the top of the screen.

LAYOUT AND PRESENTATION

Eureka's main asset is its ability to alter the style of each individual cell. This lets you change the outline font used, justification and formatting of text or numbers, background colour and even the individual height and width of each row or column.

This may sound like a lot of work, but like DTP packages, Eureka lets you design styles, and a number of predefined styles are provided such as comma, currency and percent. At the top of the work bar is a window showing the style attributed to the currently selected cell. By clicking on the

adjoining down arrow all available styles are displayed, and a single click adds that style to a selected cell or group of cells. Alignment of text or numbers can be achieved with a click on the work bar, while other individual style changes are available from a menu.

Graphic facilities enable the outlining of groups of cells or the addition of lines to any of the four sides of a cell in a range of line types and colours. Each cell's background may be individually coloured and together enable the construction of eye-catching reports. A single cell may be selected with a click, or a group of cells by dragging. This is also true when selecting references, in which case a range divider is automatically entered in the appropriate place if required. Unlike Pipedream you can also select unconnected cells or groups of cells.

SPREADSHEET FUNCTIONS

Anything typed in appears in the data entry box in the work bar and only enters the cell on pressing Return. Text and numbers are dealt with automatically, and text will overflow a cell to the left or right assuming there is nothing in that box, otherwise the text is truncated at the cell division. Formulae are specified by prefixing them with '=' saving confusion between cell references and text or numbers. Eureka contains over 150 built-in functions, but a large number of them have limited applications and I did miss Pipedream's database functions. Individual cells, ranges of cells and formulae may be named, allowing meaningful references elsewhere in the sheet.

To copy formulae or data you select a range of cells, and on selecting *fill* you are given the option to fill right, left, down or up with the most obvious choice already selected. If you want to create a series rather than just a copy you can do this as well with the option to increment dates in day, month or year steps, linear progressions with start and stop values, or multiply by a constant value. Editing the worksheet is simple, with the usual tools such as cut, copy and paste along with the facility to clear a cell completely, or just remove the formats or the formula. The same is true of the paste menu which allows you to paste the whole cell or just the formula, the value, or the format. You can insert and delete rows and columns or just individual cells.

The sheet may be viewed on screen without grid lines or borders, and there is an option to remove zeros from sheets to improve their look. Several copies of each sheet may be viewed at any one time, but a much more elegant method of displaying different parts of the worksheet is offered. A black line can be seen in figure 1 just above the vertical scroll bar. Dragging this down with the mouse splits the sheet at that point and produces a second scrollbar allowing the two parts of the screen to be scrolled independently. A similar option is available in the horizontal plane. This setup along with the window size and screen position are all stored with the file so it will always reopen in the same style as when you last saved it.

Sheets may be linked by external references to other sheets, although linked sheets do not load their dependent sheets and the cells are referred to by their full pathname rather than their leaf name.

GRAPHS AND CHARTS

By selecting one or more series of data, a chart may be created by clicking on the chart icon on the workbar or from a menu option. If you have included category information or column headings, Eureka intelligently works out which is the category and which is the value, and displays the default bar chart with the categories at the bottom and the scaled value up the side, regardless of the orientation of the original data, as can be seen in figure 2. You can select from bar, line, pie, column, area and scatter graphs and some formats allow stacked or percentage options as well.

Although there is not the total control over the graphs that Pipedream provides, virtually every part of the graph can be altered in some way and I didn't find anything lacking. You can alter the background and foreground colours of virtually everything, as well as displaying legends and graphs with shadows to any side, and major and minor grid lines can be

displayed. The legend can be positioned to any side, and a title and axes legends may be added with any font style and size. With every change Eureka reformats the graph to ensure it retains its central position.

Printing is achieved through RISC OS printer drivers, but there is no option to print a selected part of a sheet or to print in draft mode, which is something I find invaluable. I would like to be able to export part or all of a sheet as a spaced ASCII file enabling printing via Edit for instance. It would also be nice to see page breaks which would help in page layout.

SPEED AND CAPACITY

Comparisons of speed and size are very subjective, but as you can see from the two tables, Eureka is significantly faster on both calculating and formulating than Pipedream 4. All the tests were carried out on a complicated formula replicated across 8 columns and 300 rows. In fact I noticed that most functions were faster in Eureka, making it easier to use on an ARM2 machine. This is reflected in the amount of memory used by the program and also in the larger disc space required to store a file, probably because of the greater amount of information required for the display attributes of each cell. However, Eureka uses available RAM more efficiently than Pipedream, and this is shown by the size of the same file when loaded.

	MEMORY USED	DISC	MEMORY
PRODUCT	FOR PROGRAM	FILE SIZE	FILE SIZE
EUREKA	1120k	196k	320k
PIPEDREAM 4	896k	107k	512k

Table 1. Sizing comparisons

		CALCULATE	REPLICATE
PRODUCT	PROCESSOR	FORMULA	FORMULA
EUREKA	ARM 2	18 secs	6 secs
EUREKA	ARM 3	10 secs	3 secs
PIPEDREAM 4	ARM 2	30 secs	11.5 secs
PIPEDREAM 4	ARM 3	16 secs	6 secs

Table 2. Speed comparisons

Pipedream claims to have unlimited file size while Eureka has a limit of 16384 rows by 256 columns. In practice this is not a problem, as even a 4Mb machine will run out of memory before this limit is reached. In fact Eureka managed 19440 cells in memory against 13200 for Pipedream although this obviously depends on what is being stored.

IMPORT AND EXPORT

Eureka can import and export Lotus 123 WKS and WK1 files, and can preserve most formatting commands although charts are not interchangeable. Sheets can also be imported in CSV format, and can also be exported in either CSV or Draw format. The only problem is you cannot save a selection from Eureka, so editing needs to be carried out in Draw.

DOCUMENTATION

The handbook is well laid out and takes you through starting up and explains clearly what all the various parts of the program do. There is then a very short tutorial section backed up by files on the example disc. There is a reference section and then a function reference which is one of the clearest guides I have ever seen with function descriptions and a working example of nearly every function along with a cross reference to associated functions.

Unfortunately this is where the manual stops. There is no index, which I think is essential in a product of this complexity. I would also like to have seen more worked tutorials, a function keystrip and a list of Ctrl keys used.

Overall I found Eureka easy to use. If you don't want the more complicated functions of Pipedream 4, Eureka is ideal and certainly surpasses Pipedream 3, especially in price. The good news is that the next release of Eureka towards the end of this year should bring it into line with Pipedream 4 with the addition of macros and user-defined functions. This upgrade will be free to all registered users of Eureka.

Product *Eureka*
Supplier *Longman Logotron*
124 Cambridge Science Park,
Milton Road,
Cambridge CB4 4ZS.
Tel. 0223 425558
Fax 0223 425349
Price *£139.82 inc. VAT*

For comparison, Pipedream 3 costs around £150, and Pipedream 4 around £210 (inc. VAT).

Education: Developing Picture Processing

In this month's educational feature Chris Drage turns his attention to the role of graphics in classroom.

The concept of using a computer as an artistic medium has certain advantages: it provides an alternative to the constraints and restrictions offered by traditional classroom materials and modes of working, and can open up new horizons for exploration. As children have been able to manipulate text in a word processor so they begin to manipulate images, providing the same dynamic approach to editing and alteration as word processing does for writing. Once this concept is understood children begin to see computer-based art as electronic 'picture processing'.

Keyboard Technology's Touch Screen with 1st Paint

Where a computer art program differs considerably from traditional painting/drawing methods is in the range of tools available. Although an artist may have a range of brushes, pencils or pens at his/her disposal it is not often that an air brush is at hand for example. Similarly, the ability to undo an operation like filling an area with colour is totally unavailable by traditional methods yet is always available in good graphic art software, positively encouraging experimentation with design, colour and texture.

Earlybirds

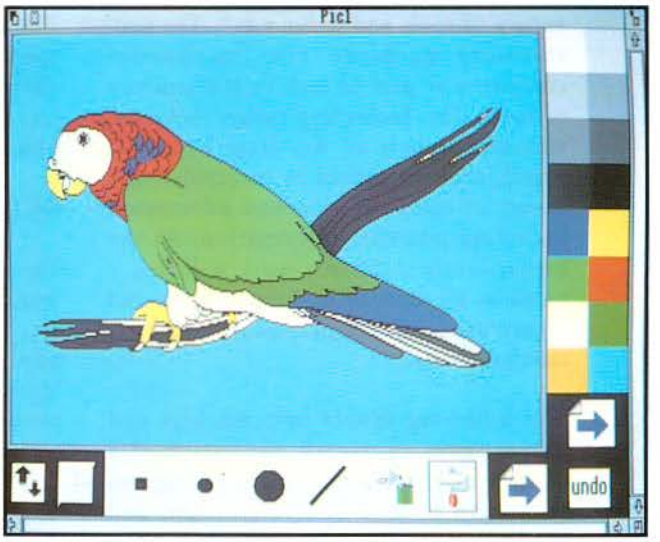
Not unnaturally, in exploring this new medium, children need to develop a range of concepts, skills and knowledge commensurate with their age and ability.

Minerva's PrimeArt

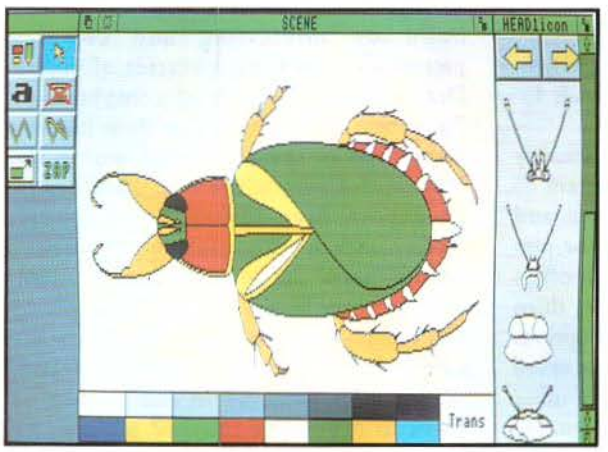
With the range of graphics software available today on Acorn's RISC

computers, adopting a developmental approach through the school is quite possible and certainly desirable. There are a large number of commercial graphics/design type packages available through which children can experience the joy of processing their pictures using a variety of possible input devices.

In exploring computer art, the children will need to develop new skills, so it is wise to introduce new tools and techniques gradually as they are ready. The mouse is a great help here as it proves much better than the keyboard for graphic art work, as gross hand movement is easier for most children to achieve once hand and eye co-ordination has been established.



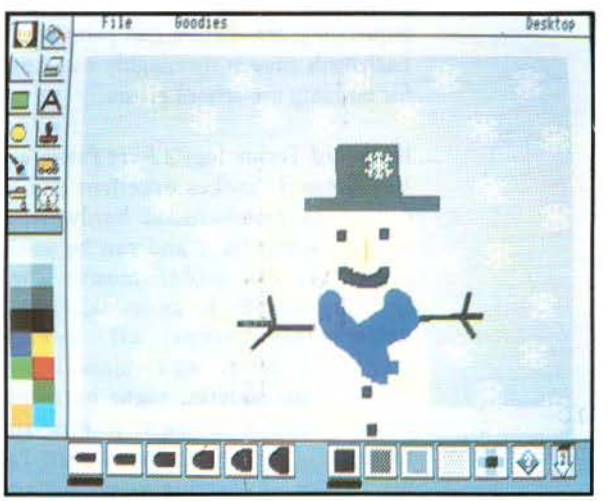
1st Paint from Keyboard Technology



Picture It from Appian Way

It is useful to divide the children's experience into three parts. First, demonstrate how certain essential things are achieved with the hardware and software provided, giving them a taste but leaving some aspects open for discovery. Second, allow children time to play and experiment with the facilities on offer. When they have 'discovered' an interesting technique they will quite often be motivated to attempt a complete picture or design. Third, give them time to develop and amend their 'work of art'. This is heavy on computer time but is time well spent, and is amply rewarded by the pride and satisfaction gained by the children. A well executed picture can be printed directly or 'dragged' into a piece of writing first, so that each child has one copy to take home and one for the teacher to add to the wall display.

Although the National Art Curriculum contains few specific references to computer generated art throughout the Key Stages, it does state that children should use... "a



Kid Pix from ESM

variety of tools and techniques". The non-statutory guidance also emphasizes computers as part of each child's armoury of tools. The Technology orders, however, state that as early as Key Stage 1 (age 5-7 years), children should be manipulating a variety of computer generated information including pictorial information. At the higher levels children's work will find a niche in all manner of computer created presentations (DTP, graphical databases, multimedia etc.).

The following should help teachers and parents gain an overall impression of a number of proven computer art programs which can be used to create designs and images in their own right or for use in other software.

INTRODUCING YOUNG CHILDREN TO COMPUTER ART (KEY STAGE 1)

Earlybirds for the Archimedes is a sensibly designed and delightfully easy program to use. It is clear, bold, mouse driven and virtually 'crash' proof, and is ideal for pre-school and reception class children. It offers only basic tools: a 12-colour palette, three brush sizes, rectangle, circle and fill options and virtually no keyboard input. Once saved the pictures can be used in a variety of other programs: SNAP, CUT UP (puzzle program), and planned programs covering sequencing, tessellation and pelmanism. The Earlybirds suite is thoroughly recommended for budding pre-school artists.

Keyboard Technology's ***First Paint***, also for Key Stage 1, makes excellent use of the company's *Touchwindow* hardware, but is not dependent on it and can be used with equal success under mouse control. Utilising simple, large icons, First Paint deliberately keeps all operations manageable for young children. It employs a 16-colour palette, eight patterns and drawing shapes and eight picture 'stamps' for making repeated patterns. First Paint is my choice of starting point for serious 'picture processing' on the Arc and without exception all children take to it like ducks to water. With a Touchscreen or Trackerball (N.W.SEMERC - one of the Special Education centres)) or similar input device, First Paint is ideally suited to introducing children with special educational needs to computer art.

KEY STAGE 2 (JUNIOR SCHOOL)

The Archimedes range offers an excellent working environment where screens/sprites etc. can be shared with other relevant applications simply by 'dragging' and 'dropping' them in place. However, the need for an equally simple means of creating them has never been greater.

There are relatively few object-oriented drawing programs for youngsters; ***Picture IT*** however, permits young children to build up interesting and complex pictures/scenes from libraries of simple Draw objects - a sort of computerised Fuzzy Felt. The bonus is that these libraries are linked to specific topics within the National Curriculum e.g. Buildings, Transport, Map-Maker, Solar System, Birds, Clothes, Christmas and Dinosaurs. Files of 'parts' can be dragged to the object window from library discs to be displayed for selection. From here the parts are assembled and manipulated (stretched, shrunk etc.), coloured in and 'pinned' in place to produce a finished picture. An animation program is included which will animate any set of saved images which are numbered sequentially. The program can share Draw files/objects with any other RISC OS compliant program, and offers a unique focus for a wide range of topic based activities for Key Stage 2 children.

There can be few if any more ingenious and innovative starting points to art with a computer than ***KidPix*** (ESM). As an introduction to computer graphic art, KidPix, complete with unusual sounds and visual effects, is really hard to beat! Deliberately easy to use, it is packed with different brushes, special effects and ready-made images which positively encourage the most reluctant child to experiment. This well-designed program can become a springboard for investigations into many

varied visual concepts like thick/thin, light/dark, inside/outside, opaque/transparent etc. With its variety of 'safety' features including 'Small Kids Mode', preventing young children from accidentally opening menus or applications, KidPix is one program that really does come up to the claim: "...children can work independently with little or no supervision". With its ready-made graphics and 'rubber-stamp' features, KidPix is one of my favourites.

PrimeArt (Minerva Software) is one of the most comprehensive art programs for Key Stage 2 children available. It employs no less than eleven types of colour fill! Undoubtedly, its major attribute is that menus can be tailored to suit particular requirements, and the whole setup saved with a child's picture to be reinstated automatically when work is later loaded. Similarly, different set-ups can be created and saved to suit particular projects or tasks. Concept Keyboard input, brush hatching, 'sticky' menus, magnified pixel editing, and a 256 colour palette are just a few of the multitude of features within this program. Sprites can be sized, placed anywhere on the screen, rotated, flipped and tiled using the most novel tiling tool I've yet seen. Four options on the menu will produce the final prints in small, portrait, landscape or poster sizes. The poster option produces prints which occupy four A4 sheets which are then joined. There is even the optional Display Kit (£12.00) with which to create a 'slide show' of children's work. PrimeArt is a truly comprehensive art program.

If PrimeArt's price tag puts you off, then ***Imagine*** (Topologika) at half the price will really please. Although it is not RISC OS compliant, Imagine is specifically designed to be easy to use, and has some interesting features. These include built-in mathematics facilities (tessellation, symmetry, mapping, nine geometric shapes), magic pen, on-screen help, and being able to copy between two 256-colour screens concurrently. These are in addition to all the usual drawing/painting tools/techniques. This program even remembers which option was chosen from a menu last time it was accessed. As it can be fully configured, Imagine can be as complex or as simple as required. Even the mouse can be configured for left-handed use.

Software which lies at the intersection of maths and art is ***The Art Machine Pattern Book Packs 1 & 2*** (Topologika): two suites of five programs, respectively, for investigating weaving, pattern, bounce, tiling, Koch Flakes (snowflakes), tracks, moving squares, cyclical stories and fractal trees. I first saw these programs at the Art Machine exhibition at London's Barbican Centre when I took a class of eight year olds there for the experience. What are they like? The majority of the children had to be physically prised off the computers in order not to miss the train back to school: enough said!

Next month I turn my attention to Key Stages 3/4 and examine a range of software suitable for secondary students and look at the possibilities of using art software in the home context.

Earlybirds1, Snap and Cut Up are available from IT Service, Bilford Road, Perdiswell, Worcester WR3 8QA, tel. 0905 51256. Price: £25.00, £12.50 and £15.00 respectively.

First Paint is available from Keyboard Technology, Unit 3, Gordon Road, Meadow Lane Industrial Estate, Loughborough, Leicestershire LE11 1JX, tel. 0509 610706. Price: £29.50.

Imagine and the Art Machine Software are available from Topologika, Box 39, Stilton, Peterborough PE7 3BR, tel. 0733 244682. Price: £39.95 each.

PrimeArt is available from Minerva Software, Minerva House, Baring Crescent, Exeter EX1 1TL, tel. 0392 437756. Price: £79.95 (inc. Primary Licence).

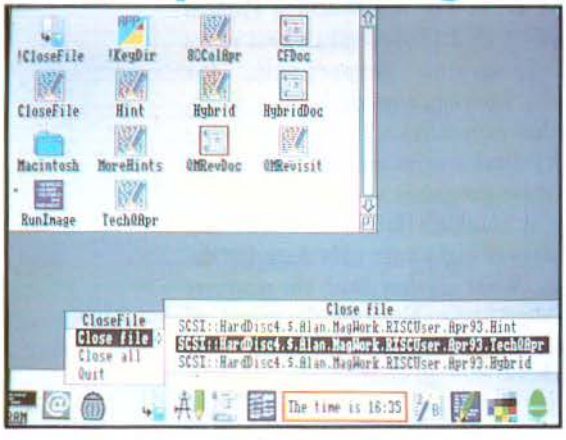
Picture It is available from Appian Way Software, 34 Quebec Street, Langley Park, Durham DH7 9EX, tel. 091-373 1389. Price: £49.00 (inc choice of two topics packs), £15.00 per topic pack.

KidPix is available from ESM, Duke Street, Wisbech, Cambridge PE13 2AE, tel. 0945 63441. Price: £55.00.

All prices exclude VAT.

RISC USER DISC CONTENTS
April 1993

An Open File Manager



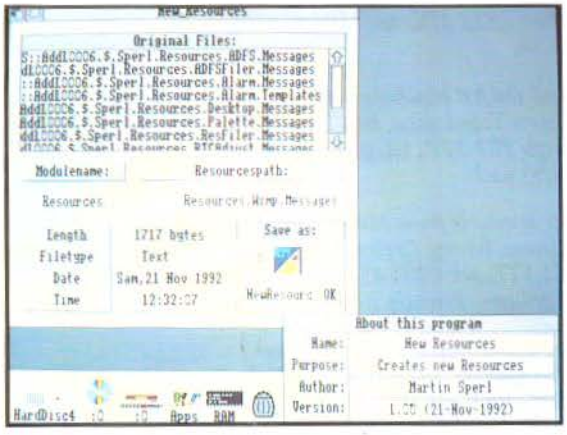
The open file manager allows you to monitor which files are open at any given time, and to close any from the displayed list - very handy for checking for open !Run files, etc.

Pinboard Backdrops

Select any one of 64 Pinboard backdrop patterns using this clever application, or add to its repertoire with your own designs of sprites for tiling.

ADDITIONAL ITEMS DESCRIBED IN THE MAGAZINE

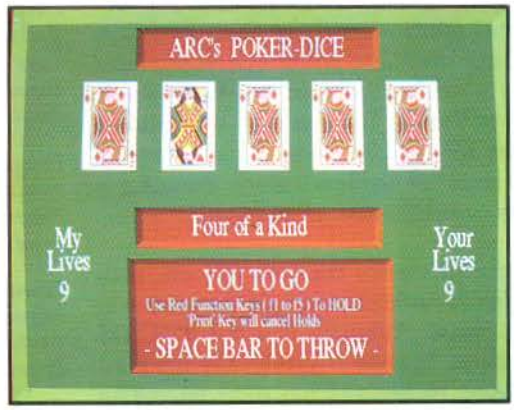
Resource Generator



Put your own disc-based applications into the RISC OS 3 Resources directory with this Resource Generator. As an example, a module called German Risc is included which provides German language messages for many of the ROM-based applications.

BONUS ITEMS

Poker Dice


ARC's POKER-DICE
Four of a Kind
My Lives 9
Your Lives 9
YOU TO GO
Use Red Function Keys (f1 to f5) To HOLD
Print key will cancel Holds
- SPACE BAR TO THROW -

This well presented game enables you to play the computer at Poker Dice by taking turns in throwing the dice to see who can achieve the highest score. Like all classic games its apparent simplicity disguises the addictiveness which rapidly ensues.

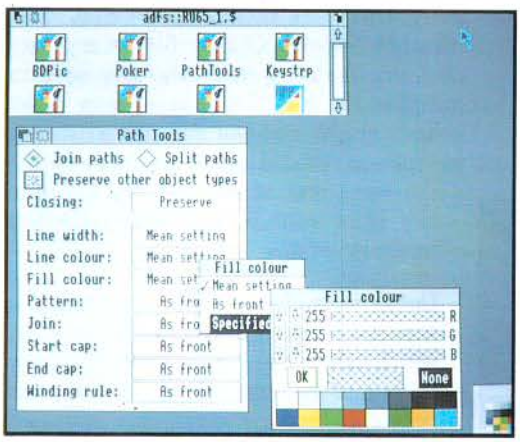
ArcScan Data

ArcScan indexes for this issue of RISC User and BEEBUG Vol.11 No.9.

SWI Translator

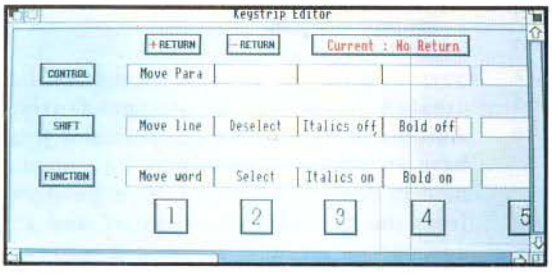
SWI calls (SYS functions in Basic) are more efficient if called by numbers. This application takes the process one stage further by creating meaningful variable names to hold the SWI number. Just drag your Basic program to the application and all the work is done for you.

Path Tools

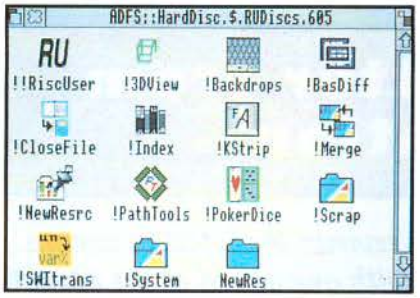


This application enables separate paths in Draw objects to form a single path with 'move' segments, with numerous options to be selected by the user. It will also perform the reverse of this process, and can be used to create masks, thus providing many of the functions to be found in Vector.

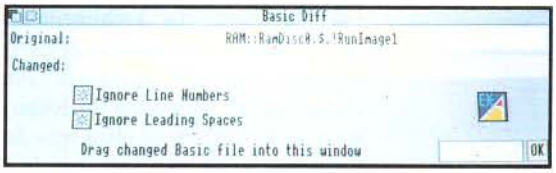
Keystrip Editor



Following last month's keystrip for RISC OS 3 Draw, we now present a complete keystrip editor, for creating, editing and printing any keystrips you need for your Archimedes.

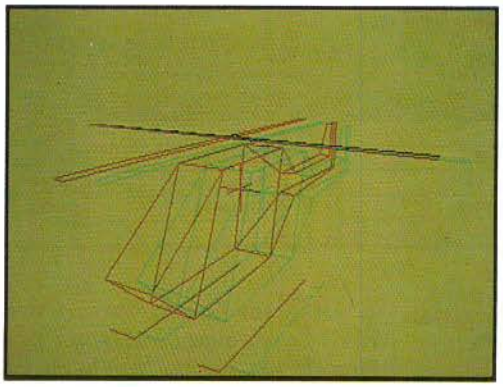


Basic Differences



This is another application which should prove very useful to Basic programmers. It can be used to compare two versions of a Basic program to highlight their differences, and can also be used to merge the two versions together under user control. It also provides an easy way for published updates to be appended/merged with existing programs.

3D View



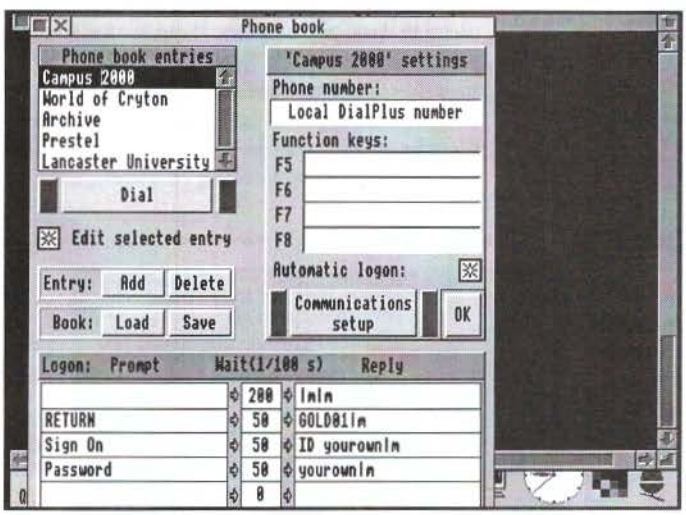
The Object application is a stand-alone application by the author of Perspectives reviewed in this issue. Object allows any object to be viewed in three dimensions on screen, including the option for stereoscopic images which should be viewed through red and green gels to see the full effect. A number of example objects are included with the application.

This action packed magazine disc costs just £4.75 inc Vat.

Chatter from 4Mation

Ian Burley reviews the latest in comms packages, with one aimed at the educational market.

To produce a decent communications package for any computer is a bit of a black art. The Archimedes, which has had a history of oddities afflicting its main comms interface (the serial port), is no exception. Despite such problems, there are several accomplished packages for the Arc including Longman Logotron's ArcComm 2, ARCterm 7 from The Serial Port and RISC Development's Hearsay II. 4Mation recently entered the fray with *Chatter*, a competitively priced package aimed squarely at comms novices and the education market.



Chatter phone book configuration window

At £37.50 (ex. VAT), which includes a free site licence, Chatter comfortably undercuts its main rival, ArcComm 2. Both these programs have schools primarily in mind and offer specifications closely following the requirements of the Campus 2000 online service for schools. Of course, the more powerful and expensive ARCterm and Hearsay alternatives also incorporate Campus 2000 compatibility. However, all the additional features of these relative heavyweights conspire to make it harder for the user to become familiarised with the software. Chatter and ArcComm 2 have the accent on simplicity, though some might complain this has been at the expense of some necessary features.

My first problem with Chatter was that I didn't read the manual properly before installing it. A quick glance at the manual contents page didn't indicate a chapter on program installation. I wasted time manually copying Chatter files to my hard disc, not realising there was any need to initialise the disc. I wondered how many others might not see the initialisation instruction, placed out of the way before the main text of the manual. 4Mation say they seldom get any customer feedback on this.

Unlike most of its competitors, Chatter is supplied on a copy-protected floppy disc, which means you cannot make a security backup of the programs until the disc has been initialised. However, once initialised you are free to make as many copies as you like though all of these copies will have your details embedded within them. Dave Caughley and Mike Matson at 4Mation have worked hard to provide Chatter users with a very concise and accessible RISC OS front end. Chatter is certainly one of the simplest RISC OS comms packages I have come across. There aren't too many main menu options, and the phone book is easy to get into and edit.

Several different address books can be created and saved independently. Automatic log-ons are supported if you have an intelligent modem and a suitable modem driver is selected. Log-on messages from the host can be recognised and an appropriate response actioned if required by entering a suitable command script. Function keys can be used to contain short script sequences which can be used as hot-key commands once you are on line. In

turn, the phone book menu is neatly linked via a nice big button to the main terminal configuration dialogue window. Open this window and initially it reveals a one third view of its area. You're not immediately blinded by a bewildering myriad of set-up options. The rest of the window's contents is easily revealed by maximising the window or dragging the horizontal scroll bars.

The terminal set-up provides access to fundamental settings like comms data rate, data format, and terminal emulation. Unusually, there is an option which is designed to prevent some intelligent (Hayes compatible) modems from using certain error correction or data compression modes which would confuse the host system set for that particular phone book entry.

From the same window you can choose other standard options like echo status, Xon/Xoff and character pacing rates. Here you can also choose Campus 2000 mode which ensures the terminal recognises special Escape sequences for automatic online switching between different terminal emulations, notably Prestel viewdata and VT102 for Telecom Gold. All the communications settings are either linked to individual phone book entries or can be altered to take immediate effect if you are dialling manually.

To choose a modem type you need to have a look at the Chatter icon bar menu. Clicking on the *Choices* entry reveals another compact and neat dialogue box. You can either choose a pre-prepared modem driver, create a new one or modify an existing one. Once opened, the modem driver configuration window lets you edit the modem driver name, type, dial strings and various optional commands dependent on which type of modem you are using. I'd like to have seen a rather bigger selection of modem drivers supplied with Chatter. If, as 4Mation has indicated, Chatter targets the comms novice, the complexities of setting up a new driver from scratch for an unsupported modem model are not to be recommended.

Back to the Choices dialogue box, there are also some radio buttons to set a history buffer size. This is a useful feature which enables you to look back at something which may have scrolled off the screen up to a maximum of 10,000 lines back - depending on what you've set it to and how much memory is free. A recent addition I have been informed of, but haven't yet seen, is a replay utility which captures an online session and enables the user to browse over it at leisure offline without the phone bill still ticking away. This is aimed at videotex users and particularly Campus 2000 users who have access to the relatively pricey Minitel service in France.

Chatter online to The Silicon Village viewdata service. Note the glitch caused by misinterpretation of double height codes

So far so good, generally. Unfortunately, when I started using the program in anger I became rather disillusioned with Chatter. Its admirable user interface is not matched by the accuracy or performance of its terminal emulations, especially the screen update speed - or lack of. At the less demanding speeds of 1200 or 2400 bits per second (bps) the screen updating is just about acceptable on an ARM2 machine. Any faster than that and Chatter is left behind by the modem.

The worst culprit is the viewdata emulation, which couldn't display incoming data faster than about 4800bps. Owners of increasingly popular 9600bps or 14.4K bps modems will be very frustrated by the version of Chatter

Continued on page 45

THE PERFECT ANSWER

The BJ-200 is a brand new black and white printer from Canon, the market leaders in inkjet printing. This is a high speed, high resolution printer ideally suited to the Archimedes range of computers.

Computer Concepts supply the BJ-200 with a special version of their TurboDrivers - the fastest printer drivers available for the Archimedes. The printer also includes a built-in 80 page sheet feeder. The price for the printer with TurboDrivers is just £299 + vat (+p&p) - a full £100 less than the recommended retail price.

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Speed comparison table

Comparison print times using Acorn printer drivers with a Deskjet500 against TurboDrivers with a BJ-200.
All times are in seconds shown on the ARM3 and ARM2 based computers.

To print a 4 page document consisting of a spread of different fonts, text sizes and graphics:

	DeskJet 500	BJ-200	Speed increase factor
Time to get control back - ARM3	313	59	5.3
Last page completed - ARM3	316	200	1.6
Time to get control back - ARM2	832	155	5.4
Last page completed - ARM2	834	232	3.6

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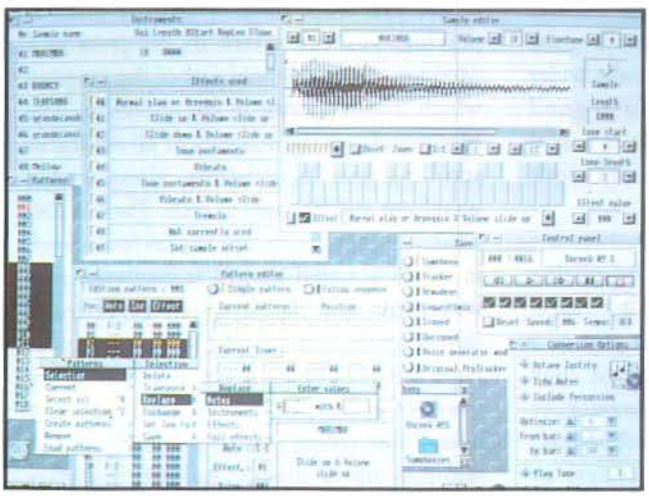
Digital Symphony

A new SoundTracker package reviewed by Richard Hallas.

Computer games and demos these days invariably contain background music created by some sort of SoundTracker program. The Amiga and Atari ST have had a monopoly on such musical productions in the past, as the Archimedes lacked a SoundTracker creation program until the appearance of The Serial Port's Tracker just over a year ago. Now Oregan Developments has entered the arena with what it claims is a significantly enhanced implementation, incorporating many new effects and features not available on any other package.



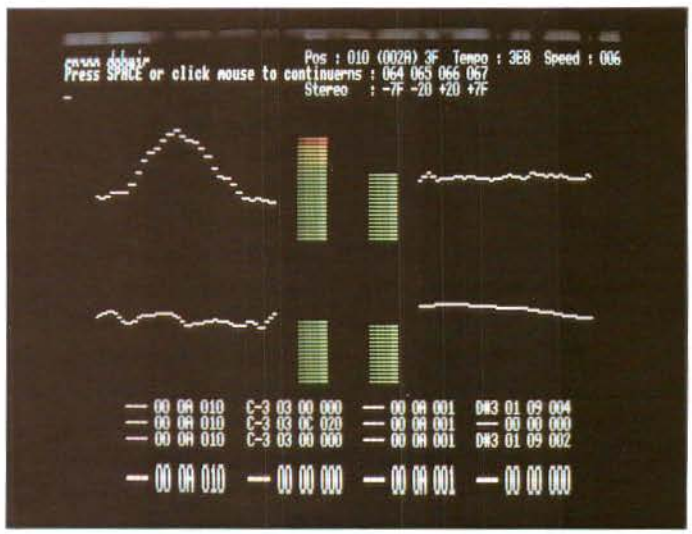
Some of Digital Symphony's many windows

THE PACKAGE

Digital Symphony comes on three discs in a rather anonymous card wallet along with a keystrip, a registration sheet and a comb-bound manual of around 40 single-sided pages. The manual is adequate, but it could have been better organised, and it contains some clumsy explanations and bad grammar. All the necessary information is there, but it may prove rather bewildering to someone coming to the subject for the first time. Two of the discs contain demonstration tunes and a variety of samples, whilst the other contains the main program and a number of conversion utilities, including one to convert Maestro files into Tracker format. The software I received was an early version which contained some minor bugs, which I am told will have been eradicated by the time you read this.

IN USE

When loaded onto the icon bar, Digital Symphony presents two icons, one of which controls its use of the sound system. The other can be



Digital Symphony's monitor screen when playing a piece

customised to open various windows. The windows themselves are unusual, as they do not match the normal RISC OS presentation. They contain the often-seen 3D Impression-style icons but, for once, this style also extends to the window borders and tools. The entire presentation of the application is very classy indeed, although it seems a little strange to have two styles of window on the Desktop at once. There are no high resolution icons, though, which is a pity.

Digital Symphony has a very large number of windows, and some of them are quite sizeable (the Pattern Editor is actually wider than the standard screen), so a good monitor and large screen mode is a real benefit, although the program will work with any configuration.

Digital Symphony's facilities for editing patterns are very sophisticated. It is possible to drag a highlight over whatever part of a pattern is required and then delete or copy the selection, just as in a word processor, or apply some sort of processing effect instead, such as transposition (in semitones) or modification of sample or effect assignations.

Whilst these editing facilities are available within individual patterns in the pattern editor, exactly the same facilities are available for selections of entire patterns in the Pattern List window, which shows all the patterns so far defined. Patterns can also be individually viewed in a Score window which displays them in "standard" musical notation. A certain amount of licence must be applied to "standard" in this context, but the window serves its purpose. Although the score was only a viewing option in the version I saw, it is promised that future versions of the program will allow full editing via the Score window. This is highly desirable, and will be a real innovation for this program.

A comprehensive range of effects is available for each note, and it is a simple matter to 'pick up' a particular combination of sample and effect, and paste it down on other notes. The three different aspects of a note (pitch, sample and effect) can be turned on and off for editing purposes, so effects can be pasted without affecting pitch, which is very useful.

A Sequence Editor has the same drag-to-select approach as the other windows, and it is easy and quick to assign the patterns to where you want them. Once the piece is playing, you can watch its progress in a Monitor screen, the only part of the program which doesn't work in the Desktop. The Monitor shows the contents of all the tracks scrolling past in real-time, along with a waveform and VU bar for each. There is also a Sample Editor built into Digital Symphony, in which a sound sample is displayed as a waveform, and an on-screen keyboard is shown which you can play with the mouse. Here it is possible to select, copy and delete parts of a sample, and to set loops and overall fine tuning (to the resolution of one semitone up or down). As with the other parts of the package, the facilities are extensive, flexible and easy to use.

THE CONVERTERS

It is promised that Maestro, MED, OctaMED, and OctaMED Pro converters will be supplied, although I only saw a pre-release of the Maestro converter. It could play the Maestro pieces at the same time as performing the conversion, and provided various options to aid the conversion process, including the ability to convert just a range of bars. It seemed to do a good job with the conversion, although I think an option to insert note cut-offs would be useful, as the harmonies can easily blur in fast pieces. A curious effect was that the converted melody could wander around the stereo positions from one side to the other! A certain amount of editing will probably always be necessary to avoid this sort of

thing but, at the very least, the converters take most of the work out of translating between formats.

CONCLUSIONS

I only really have two niggles with Digital Symphony, but both are minor. It is not possible to save the stereo positions with individual pieces. I also wished it were possible to alter the tuning of samples over more than a semitone, as some of the supplied samples play several semitones away from the correct pitch. The manual could also be better, but apart from that it is very difficult to fault this excellent piece of software. The editing facilities couldn't be better, and make it very easy to produce music quickly. Every aspect of the program's implementation and presentation has obviously had a great deal of thought and attention to detail put into it, and the final result is very polished indeed. It is written in ARM code, and works very smoothly. The only notable missing feature is score editing, which is promised for a later version (upgrades are free to registered users). Digital Symphony can save in any Tracker format, including its own new format which has a 'compressed' option. It can also create stand-alone play modules, and instructions are provided for programmers wishing to incorporate music in their own programs.

Altogether, this is a first class product which lives up to all the claims made of it.

Product *Digital Symphony*
Supplier *Oregan Software Developments*
36 Grosvenor Avenue,
Streetly,
Sutton Coldfield B74 3PE.
Tel. 021-353 6044
Price *£49.95 fully inclusive*

Chatter from 4Mation (continued from page 41)

I evaluated. Another problem is that the viewdata emulation insists on displaying frames in a two pass operation which is quite annoying to watch if you're used to better emulations. I also noticed minor problems with the way certain display codes were interpreted in both the ANSI and viewdata terminals. But there is hope yet. I put all these points to author David Caughley and in response he was good enough to spend some time improving the viewdata emulation. I haven't yet seen the modifications he came up with, but he assures me things are much improved.

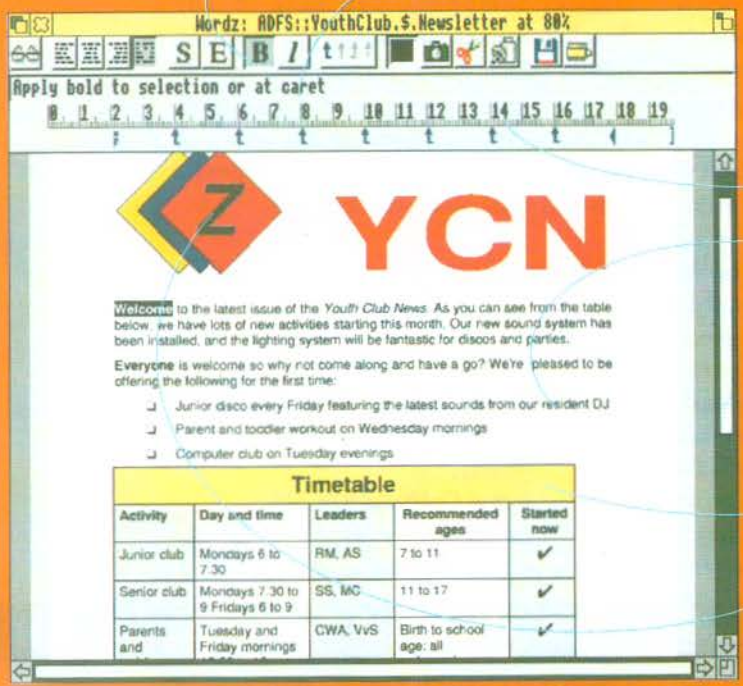
Other points he also promised to address were some quibbles I had about the ZMODEM file transfer box which asks the user to enter a filename even though this will be ignored as one is already embedded in ZMODEM files. X, Y and ZMODEM file transfer protocols are supported, but I was surprised there was no CET telesoftware downloader. 4Mation says there is little demand for it - an assumption I question.

I contacted Campus 2000 for their opinion of Chatter - they had only had a brief time to try the program but besides suggesting the replay utility, which 4Mation has since produced, they did express some reservations about the quality of the Teletel emulation - which has much more complex graphics than ordinary viewdata.

In conclusion I have to say that I was very disappointed with the program supplied for review (version 1.01). The neat RISC OS user interface was badly let down by the terminal emulations. However, I'm heartened by 4Mation's interest in what I thought of their work and if their promised improvements are implemented Chatter may yet have the opportunity of attracting attention in the education market, particularly primary and junior schools.

Product *Chatter*
Supplier *4Mation*
14 Castle Park Road,
Barnstaple, Devon EX32 8PA.
Tel. 0271 25353
Price *£37.50 ex. VAT*

news from Colton Software


Wordz: ADFS::YouthClub.$.Newsletter at 80%
Apply bold to selection or at caret
YCN
Welcome to the latest issue of the Youth Club News. As you can see from the table below, we have lots of new activities starting this month. Our new sound system has been installed, and the lighting system will be fantastic for discos and parties.
Everyone is welcome so why not come along and have a go? We're pleased to be offering the following for the first time:
Junior disco every Friday featuring the latest sounds from our resident DJ
Parent and toddler workout on Wednesday mornings
Computer club on Tuesday evenings
Timetable
Activity | Day and time | Leaders | Recommended ages | Started now
Junior club | Mondays 6 to 7.30 | RM, AS | 7 to 11 | ✓
Senior club | Mondays 7.30 to 9 Fridays 6 to 9 | SS, MC | 11 to 17 | ✓
Parents and | Tuesday and Friday mornings | CWA, VvS | Birth to school age: all | ✓

At last, the word processor the Archimedes has been waiting for. A program that's so easy to use you'll be able to create great-looking documents the first time you use it. The facilities used most are in the *button bar*, and the *status line* gives you instant feedback. Just click and drag in the *ruler* to set margins and tabs; click on a button to cut and paste - it's that easy.

Wordz has all the features you'd expect from a state-of-the-art word processor. The powerful style editor gives you complete control over all aspects of your text; *font, spacing, margins*, and *colour*. Unparalleled control over *tables* including dragging to resize columns and rows. Speedy check-as-you-type or whole document spell checking. Import *pictures* and text from other programs, including PipeDream.

Wordz is the first of a family of programs which share the same easy user interface and include dynamic data linking. The spreadsheet Resultz will be available in mid-1993.

Wordz costs £99+VAT. *"Is it easy to use? It's falling-off-a-log easy to use."*

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Customising the RISC OS 3 Mode Selector

Alan Wrigley shows you how to put your own selection of modes on the Palette Manager menu.

With RISC OS 3 you can customise the palette manager in order to include your own choice of modes on its *Mode* menu, by making use of the Resources filing system. If you have this month's magazine disc, the job is made much easier by using the *NewResrc* application. If not, proceed as follows.

First of all, click Menu on the *Apps* icon on the icon bar, and open the root directory followed by the directory *Resources.Palette*. Now create a new directory on your hard disc (with a sensible name) and copy both files from *Resources.Palette* (i.e. *Messages* and *Templates*) to this new directory.

Now load the *Messages* file into Edit. You will see a list of message tokens numbered *LO1* to *LO5*. Each of these relates to a particular monitor type and holds a list of mode numbers together with further tokens of the form *Modexxx* which describe the modes available on the menu. For example, the line for monitor type 1 looks like this:

```
LO1:12 Mode012, 15 Mode015, 27 Mode027,
39 Mode039, ? M12
```

and the tokens *Mode012* etc. are further defined thus:

```
Mode012:12 (16 colours)
```

The set of characters starting with "?" indicate a writable icon on the menu.

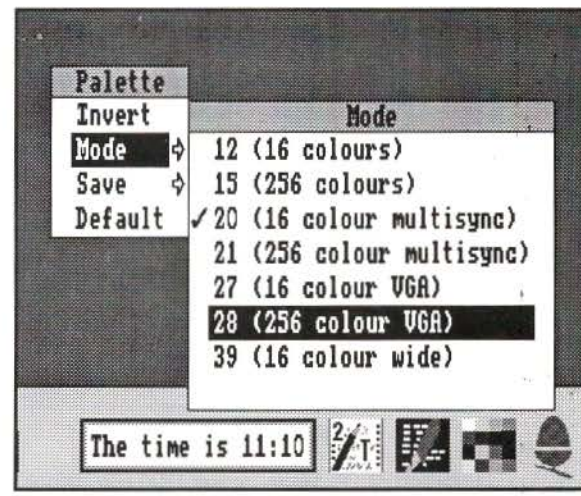
To customise the menu, first decide which modes you require (they do not need to be in any particular numeric order), and then include the appropriate references in the *LO* token line which corresponds to the one you see when you open the *Mode* menu. For example, to modify *LO1* to include modes 20, 39, 21 plus one writable icon, the line would look like this:

```
LO1:12 Mode020, 15 Mode039, 16 Mode021,
? M12
```

If you are including modes which do not already have a *Modexxx* token, add a line to the list of modes with the description you want to appear on the menu, such as:

```
Mode020:20 (multisync)
```

Now save the *Messages* file back to its new home on your hard disc. Next you need to tell the Palette Manager where to find its resources when it is started up. The problem here is that the Desktop, and the palette with it, is started up at power-on or reset, and will therefore look for its resources in the original place. What you need is a boot sequence that includes commands firstly to re-route the path which is used to search for the palette's resources, and secondly to re-start the Desktop. The first requirement is met by altering the system variable *Palette$Path* to point to the new location, and the second simply by a *Desktop* command.



The Palette Manager's Mode menu customised as described in this article

This involves using an Obey file for *!Boot*, which executes a second file (usually, though not necessarily, called *DeskBoot*), rather than using a conventional RISC OS 3 type &FEA Desktop boot file. This new *!Boot* file should contain the following lines:

```
Set Palette$Path <pathname>.
Desktop -file DeskBoot
```

where *pathname* is the full pathname of the directory in which you have placed the amended palette resources (don't forget the full stop at the end). The *DeskBoot* file (which may be a straightforward text file) should then contain all the remaining commands which are to be executed at start-up, including any which would normally be in the Desktop boot file.

You can, of course, use this method to modify the resources files for any of the ROM-based applications in RISC OS 3.

Getting the best from Ovation

Bill Nichols continues his survey of the techniques he uses with this versatile document processor.

Ovation's tools for manipulating frames and lines are very powerful. If you have an Ovation window open, slide across the *Object* option in the main menu to see the dozen choices which are available in the related sub-menu. In some cases when frames are "active" there are more choices within the Edit and View options - don't overlook these.

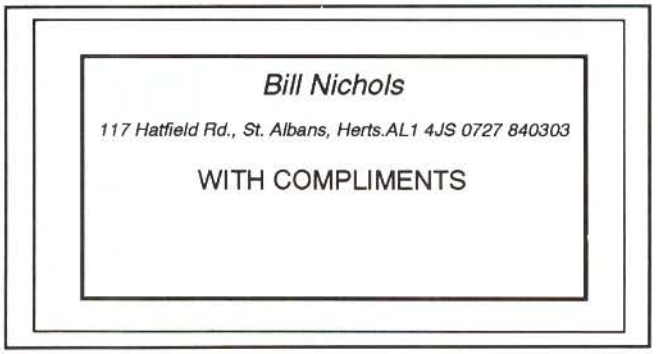


Figure 1. Compliment Slip

One layout which I find very useful is the compliment slip. It is much easier to pop one into the envelope when returning a form, or an article, or paying a cheque than writing an explanatory note. The design of a compliment slip will also allow us to look at the text frame tools in more detail. First a word about *Rulers*.

From the main menu, slide to the View sub-menu and select *Show Rulers*. These will appear along the left and the top of the document window. Possible units are metric, inches or points, which you can choose from the bottom of the same sub-menu. I recommend metric. If occasionally a dimension has to be in one of the other units, this can be done at any time and Ovation will convert it correctly. Rulers enable you to do two things easily:

1. set up guidelines on the page;
2. position frames accurately by eye.

An example of a simple compliment slip is shown here (reduced) which you can redesign to suit.

For economy and for ease of guillotining after printing, I suggest an A4 page, landscape position, divided into 6. Each slip is 148.5mm x 70mm and each will have a white margin 6mm wide (this is largely governed by how near the edge of the page you can print).

Click the Menu button on the Ovation icon on the icon bar. Choose *New Document*. In the dialogue box select *Landscape*, and make all margins 6mm. Click on *OK* and you will get the document window. Position a text frame about 5mm from the top and left hand edges of the main frame and using the rulers as a guide make it about 145mm x 70mm. From the *Object* sub-menu select *Frame Border*, and highlight the one you like (in the example it is the default - a single line). Make the line thickness 0.5mm. It is important to add the border before positioning the frame accurately. Borders are added to the outside of a frame so you must allow space for this otherwise you may get the message "No room for border". Return to the *Modify Frame* dialogue box and enter the following:

```
Origin X = Origin Y = 6mm;
Width = 136.5mm;
Height = 58mm;
Inset = 1mm;
Outset = 0mm.
and <OK>.
```

If you work it out these are the dimensions for 2 x 3 slips with 6mm margins within a page 297mm x 210mm. Now type the text into the frame using the styles you prefer. In the sample, the font is Homerton, the name is in 16pt italic, the address 12pt italic and the compliment line is 12pt normal all capitals. All text is formatted

centred. Whilst in the *Format* menu, change the leading to 25pt to improve the spacing between the lines. You now have one completed slip on the page. Keep the frame active.

DUPLICATING FRAMES

Return to the *Object* sub-menu and select *Duplicate Frame*. Enter the values as shown in figure 2 and click on *OK*.

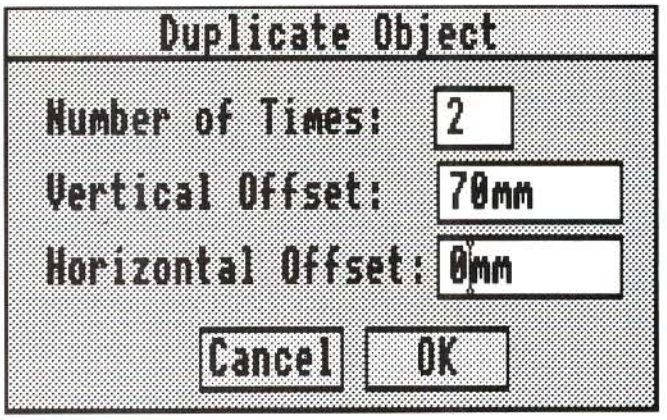


Figure 2. The Duplicate Object window

Immediately the frame and its contents are copied twice down the page. Now highlight the original frame again, and repeat the duplication process, with no vertical offset and a horizontal offset of 148.5mm., then downwards twice again as above. A word of caution - undoing a duplication can be tedious so make sure everything is correct before proceeding!

The page is now filled with six slips. Save, and then print and guillotine between the margins. If the slips are not correctly centred on the page, go to the Print Set-Up box in the File menu and adjust the X and Y corner values, until the print is symmetrical over the A4 sheet.

CROSSWORD PUZZLES

To gain more experience in duplicating frames, try designing a crossword puzzle grid. Each square should be a text frame and have its own border. Hold down Shift as you draw the frame, and this automatically makes a square. As always the border thickness must be allowed for. Draw a 9.5mm square text frame towards the top left of a new A4 page. Add a 0.25mm border. Duplicate the frame (now 10mm square therefore 10mm offset) across and down as many times as you want - say 9 times. Fill in your chosen pattern of black squares by clicking on each one in turn and change it to black or grey from within the *Modify Frame* box. Edit *Body Text* to 6pt size and type in the numbers in the appropriate squares. Job done! Here slightly reduced, is a corner of a typical grid. The process can be speeded up by creating a row of squares within a further frame, and then duplicating whole rows. Putting all the rows within a further frame allows the whole crossword to be moved or copied. Pre-planning can help a lot with tasks like this.

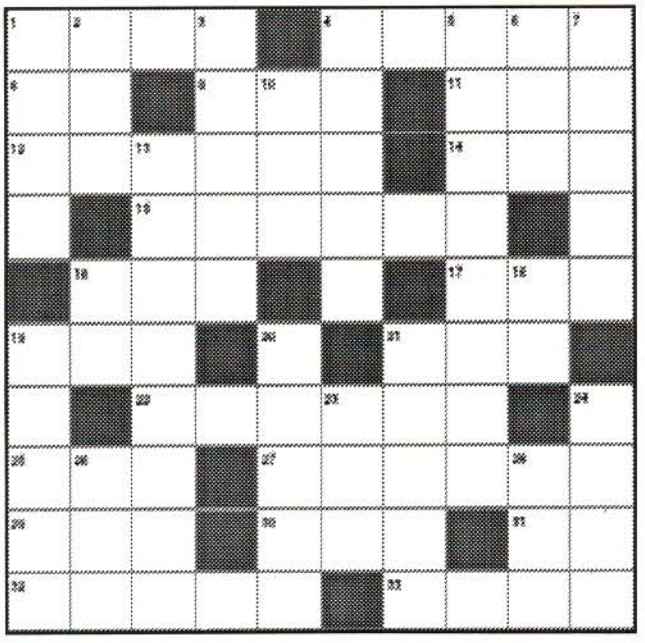


Figure 3. Crossword grid

Ovation does make these sort of constructions very easy. Try a function keystrip grid as a further example.

THE BEST PROGRAM AND TEXT EDITOR FOR THE ARC HAS JUST GOT A LOT BETTER

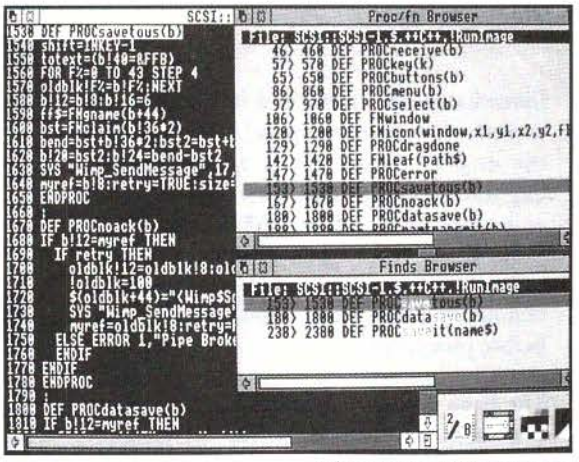
NEW DeskEdit 2

A major new release of the popular and powerful editor DeskEdit brings a whole toolkit of features that will assist all programmers, whether novice or experienced, and whether using Basic or C - and all within Acorn's powerful multi-tasking RISC OS Desktop. There is a lot for text users too.

Using DeskEdit's new Tools

NEW FEATURES INCLUDE:

- **Basic program Renumber** - and for a partial renumber, just mark a section.
- **Basic Program Indenter** - automatically reformats Basic programs to indent after IF THEN, REPEAT, FOR etc. - all fully customisable.
- **Basic Abbreviations** - all Basic V's several hundred abbreviations are implemented (optionally). Just type P. and if you are in Basic it will change into the keyword PRINT.
- **Programmer's Calculator** - a powerful calculator especially designed for handling bits and bytes. Simultaneously operates in decimal, hex and binary, and can import and export results to and from any text window.
- **Multi-purpose Browsers** - Press F2, and enter a search string. This brings up a browser window containing a list of finds. Click on any one of these and you are taken to the corresponding place in your source or text file. Alternatively Shift-F2 puts up a new browser window containing a list of all the functions and procedures defined in your source.



The new Browsers in use

- **Throwback** is fully implemented so DeskEdit can respond to messages from C compilers etc.
- **!FIND** - DeskEdit comes with a powerful stand-alone Acorn application called *Find*, which can find text strings in a whole group of files, just given a wildcarded filename.

  DeskEdit picks up the output from *Find*, and displays a window with all the finds. Just click on any find in the window, and the file will be automatically loaded into DeskEdit (if it is not already there), and the caret will be placed at the find.
- **Extended Saves** - DeskEdit 2 will (optionally) save a special data file each time you make a normal save. Next time you load your file, not only will the caret be where it was when you saved it, but wordwrap will be correctly set, all markers will be set to their previous positions, and pressing Undo will actually take you through what you did when you last edited your file!

And there is much more that is new in DeskEdit 2.

A new Keyword Help can now give help on any keyword marked in your text. A full Basic Help file is included.

The first line of Function and Procedure definitions can be highlighted in a printout. QuickSearch can now be performed backwards as well as forwards, and can also find procedure and function definitions which match your string. You can even use a marked piece of text to supply the target string for a Quicksearch.

Shift-Delete deletes to the end of a line, Ctrl-Delete deletes to the start of a line, and Shift-Ctrl-Delete deletes left and appends to the line above. Shift-Backspace performs an intelligent word-delete. There are new tabbing options etc. **All designed to make editing fast and efficient.**

All this of course is in addition to the features that have made DeskEdit so popular among users of Acorn machines, and which resulted in glowing reviews when it was first launched a year ago.

IN FACT DESKEDIT IS SO GOOD THAT IT IS USED WITHIN ACORN ITSELF.

DeskEdit 2 includes disc, new manual, keystrip and quick reference card.

PDE2b	£26.95 inc VAT + £2 p&p
PDEXa	£9.95 inc VAT + £1 p&p (upgrade*)

* Return original disc with order to:

RISC Developments Ltd. 117 Hatfield Road, St Albans, Herts AL1 4JS

Into the Arc: Using Configure (3)

by Mike Williams

FINAL THOUGHTS ON CONFIGURE

I have already dealt with most of the more significant and useful features of the Configure application, but there are still some further points which may be worth mentioning. None of these is likely to be that important in ensuring that you get the best use out of your computer - if anything such features as remain to be described just give you some choice in configuring your system to suit yourself.

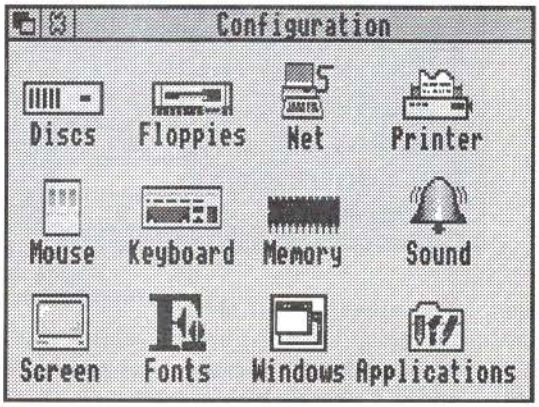


Figure 1. The Configuration options

SOUND OPTIONS

The *Sound* window does give you some control over the level of sound produced by your computer. The Archimedes has built into it a range of different sounds (called voices). The default sound, the one which you are mostly likely to hear as a gentle reminder when you do something wrong, is called *WaveSynth-Beep* (don't ask me why). There are nine different voices built in, so you could customise your machine by choosing any of these in place of the default. I find most of them too harsh or strident, so I leave well alone.

There is also a choice of a *quiet* or *loud* beep, and whichever you choose, you can vary the volume further by using the slider at the head of the Sound window (see figure 2). You can do this by clicking on one of the two arrows either side of the green bar. As you do so the current voice will be played at the corresponding volume so you can set everything up to your personal requirements. As I said, this is not crucial, and most users probably just leave everything as it is - I do. If you're fed up with sound altogether, then you can switch the speaker off completely.

MANAGING YOUR WINDOWS

Another Configure option which may be worth looking at is the *Window manager* (the *Windows* option in the Configure display) - see figure 3. This enables you to switch a number of window features on or off. *Interactive file copying* is quite useful, so leave this on - it means that a file will be copied 'in the background' thus allowing you to get on with other work once the action has started.

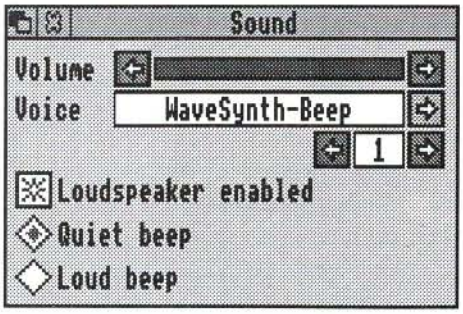


Figure 2. The Sound window

There are four options under the general heading of *Instant dragging*. These all refer to window functions, and in each case allow you to choose between a 'solid' movement or an 'outline' movement. By solid, I mean that all the detail of the window will be moved or changed at the same time. "Outline' means that only an outline is moved, and filled in solidly when the movement is complete.

Take the *Move* option for example. Look at the difference between having this option switched on or off as you drag a window around the screen. This Configure choice takes effect instantly so testing is easy.

Moving a solid window (*Move* on) looks better, but if the contents of the window are at all complicated, it can be difficult for the computer to keep up with you - on slower machines at least. The settings here are purely personal, but I would suggest you definitely have these options 'on' if you have an ARM3 machine (like the A5000 for example). You may find on other machines that things work quicker in the Desktop if you switch these options off.

HIDING WINDOWS

The Window manager also provides options windows windows to be moved off-screen. Before RISC OS 3, when windows were dragged or moved around the screen, the whole of the window had to remain within the Desktop (though there were some clever ways round this for the technical buffs). Now we can all do it.

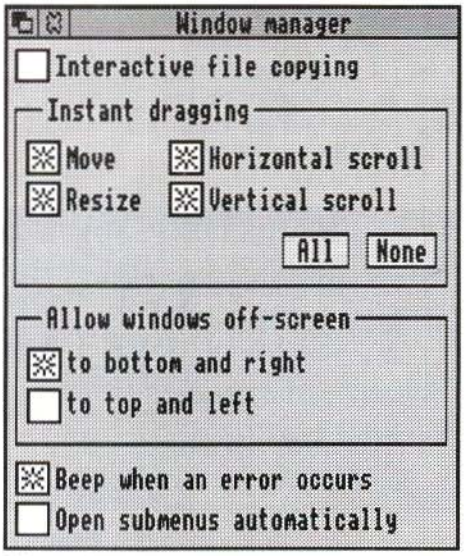


Figure 3. The Window manager

In the section of the *Window manager* window called *Allow windows off-screen*, make sure that the first option (*to bottom and right*) is selected. Now drag downwards any window currently open on the screen (use the Window manager itself if you like), and you will see the bottom of the window slide off the foot of the screen. Drag the window back up and it re-appears. The same is true if you drag the window towards the right-hand edge of the screen.

This feature can be very useful if you have several windows open within the Desktop, because you can park one or more windows so that a large part of the window is hidden from view. When you need that window, just drag it back into sight. It can also be useful where you have one window in front of another. Just drag the top window down to give you sight of the one underneath, and then if necessary drag it back to its former position.

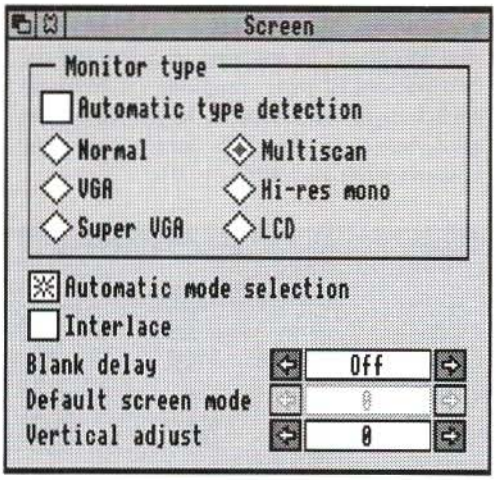


Figure 4. Screen options

The other option in this group I find less useful - perhaps that's because I'm right-handed - but try it out, and if it appeals keep it configured. Don't worry about losing a window altogether - since you need to point to its title bar to move it in the first place, but things can get a little tricky if hardly any of a window remains visible, so a little care is called for.

AUTOMATIC SUBMENUS

There are still two more options you can play with in this window. The first is fairly self explanatory, the second less so. Suppose, as an example, you click with the Select button over the drive icon on the icon bar (floppy or hard disc). A window opens showing the root directory of that disc. Click with the Menu button over that window and the standard Filer menu should appear. The first item, *Display* has an arrow pointing to the right. Normally you will need to follow the arrow for the submenu to appear. Now switch on (by clicking) the option *Open submenus automatically*. Repeat the steps outlined above, particularly with regard to the Filer menu. You should find the submenu appears automatically after a short pause. Try opening that Filer menu and selecting other options which have a submenu. In each case the submenu will appear automatically after a short pause.

Whether you like this feature or not is up to you. I don't - I find that too often I get the wrong submenu appearing before I reach the option I really want, but its worth knowing the feature is there if you want it.

APPLICATIONS

The remaining two options worth a mention within Configure are those for *Screen* and *Applications*. The latter (see figure 4) just allows you to specify any of the ROM-based applications which you want to load automatically when you first switch your machine on. I find the alarm is quite useful, just showing the hours and minutes on the icon bar - at least there's then no excuse for forgetting the time!

SCREEN DISPLAY

The *Screen* options are a mite technical, and I would largely advise "leave well alone". However, if you know for certain which type of monitor you have, I would recommend selecting the corresponding option within that window, rather than the default *Automatic type selection* - see figure 5. Similarly, if you have a particular screen mode (see last month's article in RISC User on RISC OS 3 screen modes), then it pays to specify this within the window. A word of caution - if you want to change the mode from that currently shown to another, it is better to delete the current mode number and type in your alternative. If you use the arrows to left and right (e.g. to change from mode 12 to mode 27, say) then at each increment, the whole Desktop display will change to reflect the changing mode, all very disconcerting.

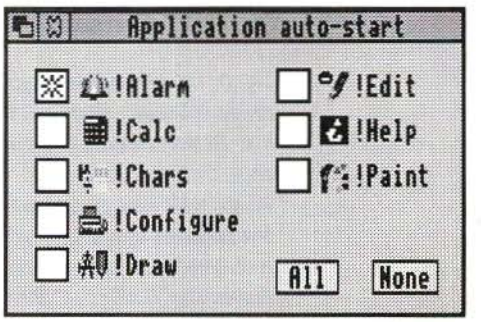


Figure 5. Auto-starting ROM-based applications

Well that's all for Into the Arc for this issue. Let me know if there are any topics or problem areas you would like to see covered in this column. Next time we'll deal with something quite different.

Network Supervisor

The desktop network manager for Acorn Level 3 and Level 4 networks

Network Supervisor has these features

Desktop editor for:
- editing password and user files
- adding, editing and deleting users in bulk
- adding, editing and deleting user profiles in bulk
- automatically inserting !Boot and !ArmBoot files in user areas

Protection:
- from casual interference at the server
- against unwanted messages at stations

Users have:
- access to their own user profiles

Desktop manager for:
- setting station numbers
- listing current users and their priviliges
- listing machines on the network
- sending messages to one or all users
- logging-off one or all users
- setting user free space in K or Mbytes
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Plus many other useful utilities

Network Supervisor:
- *manages mixed networks of BBC and Archimedes*
- *runs on Econet or Ethernet*
- *operates in a 1 Mbyte Archimedes*
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- *runs on Acorn Level 3 or Level 4*
- *supports multiple file servers*

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The Advisory Unit
Computers in Education

WRITE - BACK

IMAGERY: PALETTE STUDIO RESPONDS

Thanks for your very thorough review of Imagery (see RISC User 6:3). I'd like to make a few points about the use of the program which I think were missed, but first one about the comparison with Archrome, which appeared on an Archimedes World cover disc. Imagery does incorporate some of the same features of Archrome which was by the same author, but is some two years of development further on. Also, Archrome is not now available for sale. If users want these features they are only available in Imagery.

I think your reviewer understated the facilities for working with scanned and digitised pictures. There was no mention of Colour Replace, Contrast control or De-tint. Colour Replace is very relevant to cleaning up digitised pictures. Colours to replace can be picked from the screen with the mouse pointer, and colours not to be replaced can be masked out. The suggestion that ChangeFSI can do any of these things is misleading.

I am grateful for the praise which is given to the painting facilities, but the connection is not made between these and digitised pictures and scans. What people use Imagery for is to add captions (outline fonts), textured borders and tinted boxes to their pictures. In the case of grey scale images, these colour painting facilities are especially appropriate because they can be used to add false colour by colour replacing grey shades, and by overlaying washes, or by colour scaling.

Perhaps your reviewer didn't have time to find some of these solutions to the questions he rightfully posed. Imagery users are sending us their work which proves they are finding the answers. We've put together a newsletter with some of their graphical ideas, called Creative View, which is sent to all registered users, but is available on request to any reader of RISC User who would like a copy. Just send a stamped addressed envelope to: Creative View, Palette Studio, 108 Smug Oak Business Centre, Lye Lane, Bricket Wood, Herts AL2 3UG.

Mark Webb for Palette Studio

We always welcome comment and feedback on the content of RISC User, and we are pleased to reproduce Mark Webb's letter here. We do not lightly publish adverse criticism of any product unless fully substantiated. That was done in this instance, but even so these criticisms were discussed further with the reviewer, Richard Hallas, before publication took place.

According to Richard, a major criticism is that Imagery works only in mode 15. He believes that this is an underlying weakness in a package which is intended for processing digitised and scanned images. While it is impossible in a review of this length to mention every single feature, he believes his other criticisms are valid when set against the mode 15 limitation. Richard also added that while Imagery was a much tidier and robust program than its predecessor, Archrome, extensions in terms of new features were comparatively limited.

BOUQUETS AND BRICKBATS

I think it is time I put pen to paper (or finger to keyboard) and make a few comments about some of the products I have purchased from your company.

Wimp Programming for All

Since purchasing an Archimedes back in 1987 I have made several abortive attempts to understand the Wimp. I am pleased to report that with the help of the above book I have at long last been able to write several Wimp applications, thanks to the knowledge obtained from your excellent publication. I really do feel sure that another title (perhaps More Wimp Programming for All) would be most welcome by us 'new' band of Wimp programmers.

Masterfile III

Having received this package only a few days ago, I was amazed at how quickly I was able to set up a database and make use of the data therein. I previously had a

mass of data spread over about 15 Pipedream documents. After just a few hours work these were transferred to one Masterfile file of about 500 records.

The manual is first class in its presentation of how to use the package, although it almost seems superfluous as each function of the package works precisely as expected. What would be an ideal follow-on from your current MF III would be a fully programmable DBMS.

Wimp Programmer's Toolkit

One of the reasons for purchasing this package was to obtain the latest version of Acorn's FormEd. I was disappointed to learn that the one supplied is version 1.02. Perhaps you could check this out.

In general, thank you for producing many useful products, including RISC User itself, which acts almost as my Archimedes manual with its precise and helpful advice.

J.W.Wright

The Wimp programming book has proved very popular, and we shall be reprinting this very shortly to keep up with demand. The idea of a follow-up book, to cover some topics in more detail and deal with other matters not dealt with in the first book is an idea we may consider. What do other readers think? There are no immediate plans to produce a programmable version of Masterfile III, but further developments are in hand or under review.

As for the Wimp Programmer's Toolkit, we have only recently obtained a licence from Acorn for version 1.26 of FormEd, and this is now included as standard. Existing users may obtain this later version by returning their original Wimp Programmer's Toolkit disc together with payment of £2. Please mark your package *Wimpkit Upgrade*.

FLOPTICALS FOR BACKUP

Further to the review of floptical disc drives in RISC User 6:2, can you tell me if your Hard Disc Companion supports the use of flopticals for backup purposes?

E.F.Lloyd

We have discussed this with RISC Developments' Software Manager. The immediate answer is probably "No', as it seems flopticals have certain characteristics which are different to other types of drive and which might not therefore be supported by Hard Disc Companion (HDC) at present. While HDC could be modified to overcome , its organisation and efficiency is directed at the storage capacity of conventional floppy discs (800K or 1.6Mb). Thus HDC would probably be less than satisfactory for backup to flopticals (some 20Mb of storage) without a considerable rewrite to incorporate more relevant algorithms for this storage medium. This is being considered.

RISC OS 3: THE GOOD AND THE BAD

Some four or five months ago I converted my A410/1 to RISC OS 3. After a fair amount of experience with it, I feel very disappointed and wonder whether my fellow readers share this view.

My use of the computer is mainly word processing and desktop publishing, but I also use a spreadsheet fairly frequently, drawing software and a number of Basic programs for general purposes. All this was achieved under RISC OS 2 with great ease and speed.

In the past, when I switched on, the computer seemed to be ready for action almost immediately; now I seem to look at an acorn for ages while it initialises. Does this matter? It can be most irritating when someone has telephoned wanting information which is on the computer, but even in more usual circumstances, I find it frustrating when I think back to the previous response.

Then we come to applications. I have always used 1st Word Plus, which I still regard as superb for my purposes. I had not bothered to upgrade to release 2 and found to my horror that release 1 would not run because of palette problems under RISC OS 3. Acorn kindly sorted this out by providing a copy of release 2. This works well enough, but the method of saving and accessing files strikes me as more cumbersome now. Already I am asking why I have changed to RISC OS 3.

For DTP work I use Ovation and have noticed little difference until it is time to print. Then it seems to take an age for the new printer driver to install itself. The quality of print is very good with the Canon BJ-300 printer, but to

ARE YOU GOOD ENOUGH?

As the leaders in software for the Archimedes range of computers, CLARES MICRO SUPPLIES are looking to extend our range even further. We are looking for people who are as excited by the Archimedes as we are.

If you have written any programs, completed or not, then we would like to hear from you.

If you have any ideas for programs and have the ability to execute the ideas then we want to hear from you.

If you have the ability to program the Archimedes but not the ideas to program then we want to hear from you.

Programs can be written in any language as long as they perform their stated task. Many of our programs contain large chunks of BASIC with ARM code in the areas that it is needed. BASIC on the Archimedes is a very powerful language and we do not attach any snob value to its use. If your program does what is meant to do then thats all we are interested in. Why not join the top team on the Archimedes. You get the support of our in-house team, privileged access through us to Acorn and invitations to our informal programmers seminars.

The most important point is that you will be earning top royalty rates of if you prefer we will purchase your program outright.

Please write, in confidence, to Mr. D. Clare at:

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If you have a program either complete or in development then please enclose a copy for our evaluation.

To protect yourself we advise that you lodge a copy of the program with your bank or solicitor BEFORE you send us a copy. You can then prove that your program pre-dates anything that we have.

Act today and become part of the leading software team producing software for the worlds fastest micro.

my eye no better than under RISC OS 2.

The old Draw was not a program which I found particularly endearing, and I was delighted to discover Draw+ which is absolutely superb. I still use it; in my opinion the new RISC OS 3 version of Draw is not a patch on it.

On the positive side, the new system seems to make little difference to my spreadsheet - the now antediluvian but still powerful Logistix - and there is no doubt that Paint and Edit, two applications which I rarely use, load more quickly than previously.

The upshot of all this is that I am seriously thinking of reverting to the earlier system by re-installing my old RISC OS 2 chips. Can any readers think of a good reason for not doing so?

M.J.Long

Much always depends on an individual's pattern of computer usage and preferences. In general it is always sensible in the longer term to upgrade when new releases of the operating system, or any other software, become available. This ensures continuing compatibility and that any future software purchased or acquired will work correctly.

Another point to consider when upgrading is to ensure that your system is reorganised to best suit the new version. Yes, starting up under RISC OS 3 certainly does take longer, even more if you use a lengthy boot sequence, but this saves time later when using fonts etc. Using a Boot file is also the best time to load any printer driver. Print quality is as much a function of the printer, as anything else, so the upgrade to RISC OS 3 would be unlikely to make much if any difference here. There are many other factors which, in general, make the upgrade to RISC OS 3 well worthwhile, but what do other readers think?

PIN BOARD

PSION MC-WORD FOR THE ARC USER?

I have now read several reviews of the Acorn Pocket Book. After seeing the review of the A-Link in RISC User 6:3, I have become very interested in using the machine as a portable for doing word processing away from my main machine. However, I do feel that the screen and keyboard are too small for this purpose.

I have recently seen an advertisement for the Psion MC-Word. This is apparently 'compatible' with the Psion Series 3, but has a larger keyboard and screen. Does anyone know if the A-Link will function correctly with the MC-Word. Has anyone had experience with this device - is it a machine useful to the Archimedes user? Might we see a review in RISC User? If the machine is indeed a "grown up" version of the Series 3/Pocket Book, I think it should be examined more closely.

Andy Austin

We will investigate the value of reviewing the Psion MC-Word, though RISC User is primarily an Acorn related magazine. To our best knowledge, the A-Link will not work with this system.

Points Arising . . .

RISC OS 3 SCREEN MODES

(Volume 6 Issue 4)

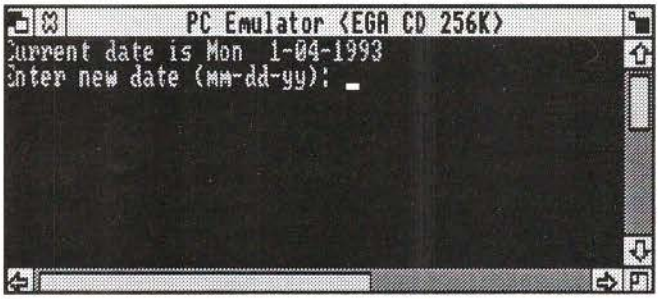
The table referred to as Table 1 was accidentally omitted. It is reproduced here. Note that SVGA modes (29-31) are unlikely to work satisfactorily except on the A540 and later machines (like the A3010) unless a VIDC enhancer is fitted.

Modes	Text	Pixels	OS units
29 - 31	100x75	800x600	1600x1200
33 - 36	96x36	768x288	1536x1152
37 - 40	112x44	896x352	1792x1408
37 - 40	112x44	896x352	1792x1408
41 - 43	80x44	640x352	1280x1408
44 - 46	80x25	640x200	1280x800

PC Survival Guide (Part 2)

by Gordon Gilmore

In Part 1 of the Survival Guide we discussed the basics of installing the PC Emulator. We go on now to look at the boot-up files and how they can be set up to create a comfortable DOS working environment.



Boot-up without AUTOEXEC.BAT

SETTING UP THE ENVIRONMENT

In PC articles, the AUTOEXEC.BAT and CONFIG.SYS files are often referred to, and it would help to understand the function of these two important files if we were to look at how a normal PC system boots-up.

At switch on (a cold boot) or after pressing Ctrl-Alt-Delete (a warm boot) the PC uses a small routine in ROM, called a bootstrap, to search the disc for a more substantial loading program. The bootstrap will first try to access a disc in drive A (i.e. drive 0 in RISC OS terms) and then, if drive A is empty, search any other floppy drives which happen to be installed, and finally look for a disc in drive C, the hard disc partition.

For this reason, before you click on the PC icon bar icon to boot up the Emulator, you should remove any discs hiding away in your floppy drives. Booting up from a floppy drive can be a useful option and we shall find use for that in a later article, but for now we are setting up the hard disc boot files.

If the disc that is found, hard or floppy, is not a valid system disc, that is one holding the two hidden system files, then an error message will be given and appropriate advice displayed depending upon whether the disc is ADFS or DOS format.

Once the loading program has found IBMBIO.SYS and IBMDOS.SYS it loads them into memory. This basic input/output system only understands a limited range of input/output devices - screen, keyboard, discs, for example - and so the system then looks in the root directory for a file called CONFIG.SYS. This is a file which you can use to tell DOS about any extra drivers which might be needed to control other devices. In this context a device may be a physical entity such as a CD-ROM drive or may be more ephemeral such as a RAM disc or a memory organisation utility. CONFIG.SYS is entirely optional but it can also be used to set up certain other useful configuration options, and it is seldom that a PC is set up without one. Having found and installed these extra drivers the DOS command interpreter, COMMAND.COM, is loaded from the root directory of the system disc and initialised. This file is not optional; without it boot-up cannot be completed.

Once boot-up is complete DOS then looks, again in the default root directory, for a file called AUTOEXEC.BAT. This file is not essential but is there to hold a list of commands which you might wish executed on startup - the kind of thing which we would put in the RISC OS !Boot file. On a simple system the 'Startup text' option in the Emulator configuration set up could be used instead. If the file is not present, DOS will ask for the system time and date to be confirmed, a relic from the days before internal clocks were standard on a PC (see figure 1).

We can put into the AUTOEXEC.BAT file any legal DOS command we wish in order to set up the computer (in our case, the Emulator) in our favourite state.

CREATING DOS FILES IN EDIT

Our next job, then, is to create CONFIG.SYS and AUTOEXEC.BAT. In MS DOS 3.3, the only facility provided for creating text files is a line editor called EDLIN. Experienced hair-shirt wearing DOS programmers have no trouble at all using this, but those of us used to the luxury of full screen editors find EDLIN a pain. There are many DOS full screen editors available ranging from public domain programs and upwards in cost. Why should we bother when Acorn provided us with Edit for free? We shall use Edit whenever possible. Open an Edit text window by clicking on its icon and type the following:

```
FILES=20
BUFFERS=20
DEVICE=\DOS\ANSI.SYS
~
```

You don't need to use capitals but since DOS will convert all lower case characters to upper case before attempting to interpret them you might as well. A word of explanation is called for. FILES=20 and BUFFERS=20 tell DOS that we wish to set the system up to allow 20 files open at one time using up to 20 buffers. 20 files open at one time might seem a lot but the screen and the keyboard are also treated as files and many DOS applications may have several files open at once.

The penultimate line tells DOS to look in the \DOS directory for a driver called ANSI.SYS and load it. This driver is not essential at the moment, but we will use it in future and now is as good a time as any to install it as an example. The last line is a single tilde character (~) which will become the DOS end-of-file marker. It should be the last character in the file (i.e. no newline character after it).

Press F3, type in the name CONFIG/SYS and drag the icon to the root directory of the PC hard disc. We now have a problem. You should find that the file is labelled with a normal text icon and this reminds us that the file is not in a DOS format. DOS expects all lines of text to be terminated with carriage return and line feed characters (characters 13 and 10 - like many other aspects of DOS a relic from the days of teletype terminals) and the file to be terminated by a Ctrl-Z. RISC OS files make do with a single line feed line termination and the CR<->LF operation in Edit is no help since that simply replaces the linefeed with a single carriage return character.

To convert text files created with Edit or DeskEdit in RISC OS format into DOS format the following short program should prove useful. Save it somewhere convenient.

```
REM >RISC>DOS
READ C$
WHILE C$<>"*"
  OSCLI("FX138,0,"+C$)
  READ C$
ENDWHILE
END

DATA 26,30,132
DATA 92,110,13,92,120,48,100,92,110,13
DATA 133,129,132
DATA 126,13,92,99,90,13
DATA 132,26,131,*
```

The program simply takes each number in turn from the DATA statements and pushes it into the keyboard buffer. These numbers represent the keystrokes needed to convert the file using the Edit or DeskEdit search-and-replace function.

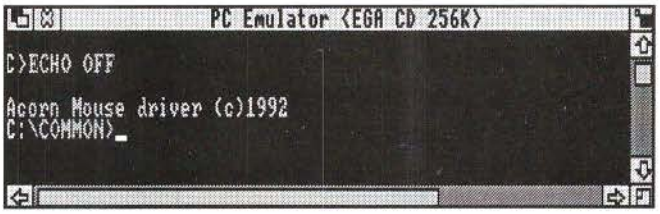
- Open the filer directory containing the RISC>DOS Basic program (if you have a Pinboard available pin up the icon and get rid of the filer window).
- Drag the file back into Edit if necessary.
- Prepare the Search-and Replace function by pressing F4 to get the *Find* dialogue box and click on *magic characters* (this only needs doing once per session).
- Make sure that the Edit window has the caret and click on the RISC>DOS icon.

You should see the Search-and-Replace window open and characters magically appear in the dialogue box. When the frantic activity ceases you should have [0d] at the end of each line (carriage return), [0a] at the very end (linefeed) and the Save box will be displayed ready for you to press Return to re-save the file.

You may, if you wish, then use either the Edit 'Misc' menu or, under RISC OS 3, the Filer 'File..' menu to alter the filetype from 'Text' to 'DOS' although this is not essential.

Now for AUTOEXEC.BAT. Again using Edit create a file containing the following lines:

```
ECHO OFF
PATH C:\;C:\UTILS;C:\DOS
AMOUSE
CD \COMMON
PROMPT $P$G
~
```



Normal boot-up

When executed, ECHO OFF will merely prevent the rest of the batch file commands from being echoed on the screen and could be left out if you wish. The command does not stop messages from the DOS operations being displayed.

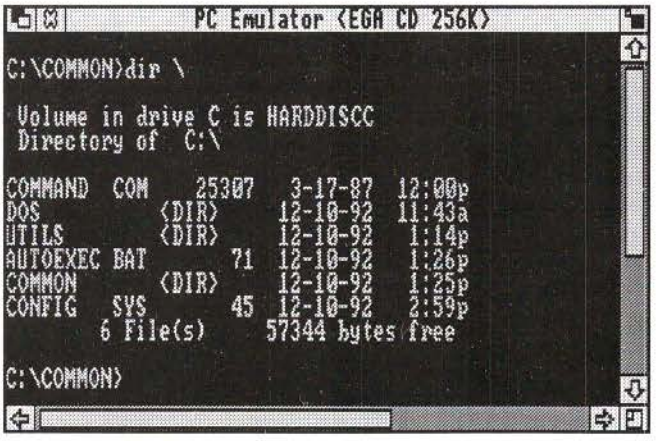
PATH=etc. is a command to tell DOS where to find certain files. Here we have told DOS to look first in the root directory (C:\), then in the UTILS directory (C:\UTILS) and if not found in either of those then in the DOS directory (C:\DOS). You can add more directories to your path in future as you accumulate more software in more directories, remembering to separate each entry by a comma. It is essential to specify the drive (e.g. C:) to make sure that files are found if you were ever to work on drive A:.

The path is used when DOS attempts to run files with the .COM, .EXE or .BAT extension. So, for example, when the next command in the .BAT file, AMOUSE, is found DOS will look in each directory in turn until it finds AMOUSE.COM in the directory \UTILS, whereupon it will load and run it.

The command CD \COMMON will simply set up \COMMON as the current directory.

Note how the backslash '\' is used to locate the directory in the root directory. Otherwise the command would look in the current directory for the sub-directory COMMON. Strictly speaking the backslash is not necessary here since the current directory is the root directory but it's a good habit to make commands unambiguous. Life on the command line is hard enough!

Our next piece of self-defence is the final command in this file - PROMPT PG. This is a command which converts the DOS prompt from the inscrutable default prompt, C >, to the much more useful C:\path\> where 'path' is the full path of the current directory. It is surprising how easy it is to get lost in a maze of directories without this alteration to the prompt (see also RISC User 6:2 page 57).



Hard disc DOS directory list

Press F3 to save this in the DOS root directory under the name AUTOEXEC/BAT. Yes, that's more than 10 characters but since the file is going to a DOS disc it works. You will notice that in the Filer window the name is chopped off short at both ends, but all 12 characters are there. However, a word of caution: if you try to copy a file with a name of more than 10 characters into an ADFS directory the name will be truncated to that length. This means that, unless you are sure that all filenames are short, you cannot use the ADFS RAM disc, or any other ADFS disc for that matter, to park a DOS file

while copying from floppy to floppy. Long filenames are only preserved when copying from DOS to DOS.

Make sure that Edit has the caret and click on the RISC>DOS icon again to convert the AUTOEXEC.BAT file. Save it again and we are ready to go. Open the RISC OS PC directory, double-click on !PCEm to install the Emulator on the icon bar. Make sure the floppy drives are empty, click on the PC icon, and after a successful boot-up the screen should appear as in figure 2.

The mouse driver is loaded, the prompt is set, and we are in the correct directory. Those of a sceptical disposition might like to confirm that the path has been set correctly by typing PATH with no parameters. Finally, just to make sure that we really are in control type:

```
LABEL C:
```

DOS has two sorts of command, internal (available immediately from within the DOS kernel) and external, which are called up from disc when necessary. LABEL is an external command which allows a disc to be named (labelled) and the program is stored away in the DOS directory. Since we have set up an appropriate path the program will be loaded and run. Type in a suitable name (I have used HARDDISCC) and press Return.

If you now type DIR \ (where \ refers to the root directory) and press Return you should get get a screen as in figure 3. We are ready for action; we have set up a reasonable starting configuration; we have all the relevant files to hand and a path along which we can access them, and we know where we are now.

Next time we'll look at easy ways of setting up different boot-up configurations, using the start-up text in the Emulator configuration file, and how to use expanded memory in the Emulator.

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? TECHNICAL QUERIES

This month Alan Wrigley answers your questions on processor contents in Assembler, using the FontMax settings and reading the state of a joystick

Q *Dear Sir*
I have just started writing Wimp programs in Assembler and am a little confused about one point. Since other multi-tasking applications may be using the processor's registers between my calls to Wimp_Poll, does this mean I cannot rely on the contents being the same on return as they were when the call was made?

John Winwick

A Although the ARM processor only has one set of user-mode registers, which obviously must be used by all the applications currently running, the call to *Wimp_Poll* adheres to the same rules that apply when making *any* SWI call - in other words, unless the PRM states otherwise, the register contents and processor flags are preserved across the call. In the case of *Wimp_Poll*, only R0 is altered, since this must return the reason code. The Wimp stores the contents of all the other registers when you call *Wimp_Poll*, and restores them when it returns with a reason code. You may therefore keep information in other registers quite safely while your application is running.

While on the subject, it is worth repeating the warning we have given before that for SWI calls which require entry parameters in R1 and above, but not in R0, you should always assume that R0 may be corrupted by the call.

Q *Dear Sir*
Please could you explain in plain English how to use the FontMax configuration settings.

Andrew Dalby

A There are seven configuration settings for the font manager - *FontMax*, *FontMax1* - *FontMax5* and *FontSize*. *FontMax4* and *FontMax5* have a very specialised use which we will not consider here, while *FontMax1* is largely irrelevant - for most purposes you can safely leave these configured to zero. *FontSize* and *FontMax* between them decide the size of the font cache (the area of memory set aside for the font manager to store information on the fonts currently in use), and were described in Into the Arc (RISC User 6:4).

This leaves *FontMax2* and *FontMax3*, both of which have a direct bearing on the way in which fonts are used and displayed. When a font is used, the font manager normally creates from the outlines in the file a temporary bitmap for the point size in question and stores this in the cache. This is done to speed up the display of the font on the screen. However, each point size used takes up additional space in the cache. If anti-aliased bitmaps are stored, this requires much more space than simple monochrome bitmaps, and so *FontMax2* is used to tell the font manager the largest point size that you want to be stored as an anti-aliased bitmap.

You can see how this works for yourself. Set *FontMax2* to a value such as 14 points. Now open a document and type a line of text at 14 points, followed by another line at 15 points. You can see quite clearly that the characters in the second line look much thinner - this is because the 14-point characters have been "fleshed out" by anti-aliasing. A sensible minimum value for *FontMax2* is therefore the point size you would use for most normal text (usually 12-14 points).

FontMax3 determines whether outlines are converted to bitmaps and stored in the cache, or used directly. For large point sizes which are used infrequently, it makes little

sense to fill up the cache, and so this configuration specifies the largest point size that will be converted to a bitmap. A sensible value is between 24 and 32 points, depending on the kind of work you are doing. You can test this out as follows: Display a paragraph of text in a point size at or just below the *FontMax3* setting. Once the characters have been drawn for the first time, scrolling the text in and out of the window should be fairly smooth (assuming you have a large enough cache in the first place), since the bitmaps are all cached. Now change the point size to something larger than the configured setting and repeat the process. You will find that scrolling is no longer as smooth as it was, since the font manager now has to draw the outlines directly each time the characters reappear in the window.

Because the characters are drawn directly from the outlines in this case, they are not anti-aliased. This means that if you want to display anti-aliased text in any particular point size, the values of both *FontMax2* and *FontMax3* must be equal to or greater than the point size you are using.

Q *Dear Sir*
Could you please give me some information on how to detect movement of a joystick from within a Basic program.

Keith Lowe

A The Joystick module which is part of RISC OS 3 allows you to read the state of either an analogue or a digital joystick. The module will only initialise if it detects built-in joystick hardware (as for example in the A3010). It provides just one SWI call, *Joystick_Read* (&43F40). On entry to this call, R0 should contain the joystick number, while on exit R0 holds a value which describes the current joystick state. For an analogue joystick this is as follows:

Byte 0: signed Y value: -127 (down) to 127 (up)

Byte 1: signed X value: -127 (left) to 127 (right)

Byte 2: fire buttons, starting at bit 0

For a digital joystick, byte 0 holds -64, 0 or 64 for down, centre and up respectively, while byte 1 holds -64, 0 or 64 for left, centre and right respectively.

If you are only interested in the absolute state of a joystick (i.e. whether it is up, down, left, right or at rest), you should allow a margin of error for the 'at rest' state, since analogue joysticks are not guaranteed to produce a value of zero. Acorn suggests a middle range of -32 to 32. So to read joystick 0 from a Basic program, the code would look something like this (assuming only one fire button):

```
    SYS "Joystick_Read",0 TO state%
    y%=FNcalc(state%):x%=FNcalc(state%>>
8)
    button%=state% AND &10000
    IF button% PROCfire
    IF x%<0 PROCleft ELSE IF x%>0 PROCri
ght
    IF y%<0 PROCdown ELSE IF y%>0 PROCup
    .....
    DEF FNcalc(a%)
    b%=(a% AND 255)-2*(a% AND 128)
    =b% DIV 32
```

Bytes 0 and 1 are passed successively to *FNcalc*, which converts them into single-byte signed values, divides by 32 to allow for the middle range as suggested above, and passes the results back to *y%* and *x%* respectively. In the example given here, *button%* will be either &10000 or zero; since we only need a true or false result for one button, this is sufficient. With more than one button, however, you will need to do a little more decoding. The value in byte 2 can be obtained as follows:

```
(state%>>16) AND 255
```

HINTS & TIPS

Don't forget to keep sending in your hints on anything relevant to the Archimedes range (RISC OS 2 and particularly RISC OS 3), and remember, we pay for all hints we publish.

MESSAGE TOKEN TERMINATORS

Terry Blunt

There is a potential problem with MessageTrans when using the SWI *MessageTrans_MakeMenus*. RISC OS 2 versions of the module would accept any control character as a terminator for the tokens, whereas the RISC OS 3 version insists on zero. Some older programs (including the demo in RISC User 5:9) fall foul of this and give a missing token error when used on RISC OS 3. To cure this, simply add a zero byte to the end of the token string, for example:

```
$bk%="MT1"+CHR$0
```

KEYPRESSES IN ERROR BOXES

Rolf Herschel

Under RISC OS 2, pressing Escape while an error box was on screen always had the same effect as clicking on *OK*, while pressing Return simulated a click over the highlighted icon in the error box (i.e. the one with a cream background). Normally this is *OK*, but the programmer can choose to highlight *Cancel* instead by setting bit 4 of R1 when calling *Wimp_ReportError*. Under RISC OS 3.10, however, Return still activates the highlighted icon, but Escape is now equivalent to a click on the non-highlighted icon. Thus in most situations it has exactly the opposite effect as it did previously.

SPEEDING UP DIRECTORY VIEWERS

David Spencer

To save time when opening a directory viewer containing many applications, hold down Ctrl whilst double-clicking on the directory's icon. This will prevent the !Boot file of each application being run. A convenient side effect of this is that any virus which acts on boot files will not be activated, so you could use this method to open a directory viewer to inspect the contents. A less convenient side effect is that none of the application icons will appear; instead, the default 'App' icon will be used. The applications should still run properly, as their !Run file should repeat the actions of the !Boot file.

RISC USER DIARY EXPANDED

Ken Cowap

The RISC User Desktop Diary (2:9 and 2:10) is described as having the capability to open 10 note windows on the screen at the same time. However, only 5 may be opened before an error message appears. The solution is to amend the following lines of the program, replacing all 4s in each line by 9s: 1480, 1500, 1700, 2450, 3470 and 3480.

CARE WITH THE JOYSTICK PORT

David Spencer

On the A3010, care is needed to make sure that a serial port device isn't inadvertently plugged into one of the joystick ports, as both connectors are the same and they are close to each other. Unfortunately, if the serial cable is wired in a certain common configuration, plugging it into a joystick port will blow an internal fuse within the computer that has to be replaced by an Acorn service centre.

IMPROVING TEXT ENTRY IN PROFORMAS

Richard Grant

I have a number of proforma documents which I keep as DTP files. These require the insertion of small items of information before printing, for example a contract of employment requires the employee's name, starting date, salary etc. To make it easier in a long document to spot the places where insertions are to be made, create a new text style (Impression) or paragraph style (Ovation), and set the text colour to red. Use this style to place a descriptive word or words in the appropriate place, perhaps surrounded by square brackets, e.g. "[Starting salary]".

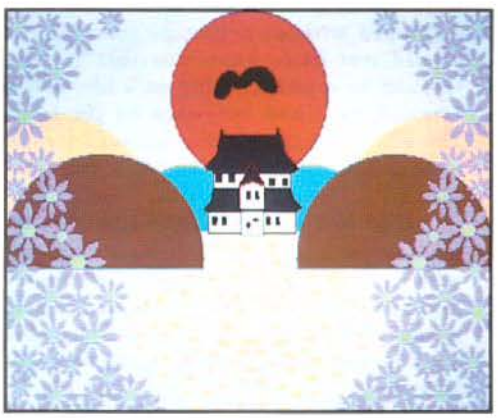
When it comes to completing the form, the descriptive word can be deleted and the required text entered. This will, of course, be in red - for many printers (my HP LaserJet

IIIp included) this will not matter as the text will come out black. If your printer differentiates between red and black text, just reset the style colour to black before printing.

CIRCULAR FRAMES IN DTP

W. Briggs

An article in RISC User 6:2 described how to create special effect frames for use in DTP packages. I have discovered a much simpler



Circular frames - Step 1

Step 2

and quicker way. Drop your image into Draw, then draw a circle or whatever shape you require. Now increase the width of the line so that a rectangular frame can be positioned around the inside of the line without going beyond the outside. Drop this shape over your image and then turn the circle or shape white. You now have an image cropped to the desired shape which can be re-sized inside a DTP frame. The illustrations show the steps involved.

RETRIEVING LOST PICTURES

Angela Bradley

Having had a number of graphics deleted accidentally by another member of my family, I was able to recover them from the Impression documents in which I had used them. Hold down Shift while double-clicking on the relevant document icon, then open up the *Chapter* directory. The graphics files are then accessible for use or for transfer to another directory. With Ovation you can achieve the same result by loading the document, selecting the picture frame and then using the *Save picture* option from the *File* submenu.

Step 3

Step 4

CHECKING FOR A SPRITE'S EXISTENCE

Andrew Cumming

The following function offers a method of detecting whether or not a particular sprite exists. This could be useful for any programs which handle sprites, particularly when displaying an icon which represents a file or application, as it enables you to find out if an icon is known for that particular filetype or application name.

```
DEF FNsprite_exists(name$)
```

```
SYS "XWimp_SpriteOp",40,,name$ TO ;flag%
=(flag% AND 1)-1
```

This takes advantage of the X form of the SWI to suppress the error generated when the sprite *name$* does not exist. It is detected instead by testing the V flag in the status register; if this is set, an error is indicated.

You can use this to construct a function to obtain the name of an icon which can be used to represent a particular object. The parameters are the object leafname and the filetype (where a directory has a "filetype" of &1000 and an application &2000).

```
DEF FNget_sprite(file$,filetype%)
LOCAL sprite$
CASE filetype% OF
WHEN &1000:sprite$="directory"
WHEN &2000:sprite$=file$
IF NOT FNsprite_exists(sprite$) THEN
sprite$="application"
OTHERWISE:sprite$="file_"+STR$~filetype%
IF NOT FNsprite_exists(sprite$) THEN
sprite$="file_xxx"
```

If no sprite can be found for the object, one of the default icons *application* or *file_xxx* is used instead.

REMOVING RISC OS CHIPS

Peter Jennings

Anyone who has tried removing computer chips with a screwdriver will know that it is best to apply leverage at both ends of the chip if it is to be taken out without damaging the pins. This is a problem when upgrading to RISC OS 3 because the chips are situated very close to the expansion board backplane. Damaged pins may not matter too much if the chips are to be discarded but it can be altogether different if one of the new chips has to be taken out again because, for example, a pin has become bent while fitting. Some reviewers have suggested removing the expansion board backplane to make access easier but a simpler way is to use an offset screwdriver, the type which has the blade set at right angles to the shaft. This is very easy to use as a lever at the backplane end of the chip while an ordinary, straight, screwdriver is inserted at the other end.

RUNNING BOOT FILES

Colin Murray

Buried within RISC OS 3 is a very useful command:

```
Filer_Boot <appname>
```

which will run the boot file of the application whose full pathname is given in *appname*. This makes it possible to load file sprites into the Wimp pool and set up run actions etc. for filetypes without having to open the directory viewer containing the parent application. For example, under RISC OS 2, Ovation files would have been displayed without a filetype icon, and it would not have been possible to run Ovation by double-clicking on a file, unless Ovation itself had been seen by the Filer. The *Filer_Boot* command is intended for use in boot files, where you would include lines such as:

```
Filer_Boot adfs::HardDisc.$.Apps.!Ovation
```

for any applications whose boot files you wish to run. If you wish to use hi-res sprites (e.g. *Sprites22* files), you should also include a *Filer_Boot* line for *SetIcons*, since this must be seen before the hi-res sprites will appear.

TUNING YOUR MOUSE

David Spencer

RISC OS 3 contains a set of configuration options to fine-tune the mouse characteristics. Four of these control drag and double-click delays: *WimpDragDelay* specifies in tenths of a second the delay between pressing a button and a drag being initiated (irrespective of mouse movement). *WimpDragMove* specifies in OS units the distance that the mouse must move to start a drag (irrespective of time). *WimpDoubleClickDelay* and *WimpDoubleClickMove* perform a similar function for double-clicking except that moving the mouse by more than the specified distance will cancel the pending double-click.

The other two options are connected with the automatic opening of sub-menus: *WimpAutoMenuDelay* specifies the time the pointer must be over a menu entry to automatically open its sub-menu (assuming this option is enabled) and *WimpMenuDragDelay* specifies the period of time for an automatically opened menu during which the pointer can move over other menu entries without closing it.

The 80 Column

Our regular round-up of printer-related items, compiled by Alan Wrigley

PROBLEMS WITH RISC OS 3 PRINTER DRIVERS

A number of readers are reporting what they see as bugs or design faults in the RISC OS 3 printing system. The facilities and flexibility offered by the new drivers are in theory greatly enhanced in relation to their RISC OS 2 counterparts, but in order to provide this flexibility Acorn has apparently discarded much of the original code and started again from scratch. Whereas the earlier drivers had had their teething problems sorted out and were fairly robust, we now have to go through the process once more.

A common problem is that of unwanted extra page feeds. This was highlighted, together with an effective but inelegant solution, in *Hints & Tips* (RISC User 6:1). Another problem lies with the built-in printer buffer. It seems that this simply doesn't work at all. At present it would appear that the most effective method of freeing up the computer before the end of the print job - at a cost - is to use CC's Turbo drivers.

A problem I have come across myself with the Epson driver is that control codes are now ignored when sending a text file to a printer, even if the *Control codes: Standard* option is set. This means you can no longer embed your own printer control codes into text files, for example to access facilities such as double-height or alternative typefaces which are not available via the normal fancy text code sequences.

A letter received recently from Paul Draper echoed the frustration of many users on this subject. Paul says he has wasted many hours, and many more sheets of paper, trying to get the RISC OS 3 drivers to work properly, and feels that Acorn should not have released them in this state. He refers to two specific problems with the LaserJet driver. Apparently it ignores his re-defined character mappings when printing, with the result that he is unable to print a pound sign, for instance. Also, it completely resets his Panasonic laser printer each time it starts printing, thus overriding the paper bin selection.

Paul also takes Acorn to task over the fact that choosing the *Edit paper sizes* menu option always brings up an empty window, with all settings shown as zero and no paper size selected. It would seem much more logical for the current paper size to be shown, or if more than one printer is active, the last one selected. In order to find out which paper size you are using before you can edit it, you have to open the printer control window and then the configuration window for the printer - all very time-consuming. Then having edited your paper size, all the data has disappeared from the window the next time you open it.

Paul's drastic but effective solution is to use the RISC OS 2 drivers for printing text. You can't use them for graphics because you will get an Unknown Sprite Op error, but for text it all works fine. The only slight awkwardness with this is that if you want to use a RISC OS 3 driver straight afterwards, you will need to reinstate the later driver module, as follows:

```
RMKill PDriver
RMReinit PDriver
```

Please write to RISC User if you have any constructive comments on this subject. Perhaps you have found something that you feel is wrong or could have been done better, or you can offer a solution to any of the problems. We will return to this topic as often as is necessary, and we will of course let you know of any updates from Acorn (which we hope they will consider as a matter of priority).

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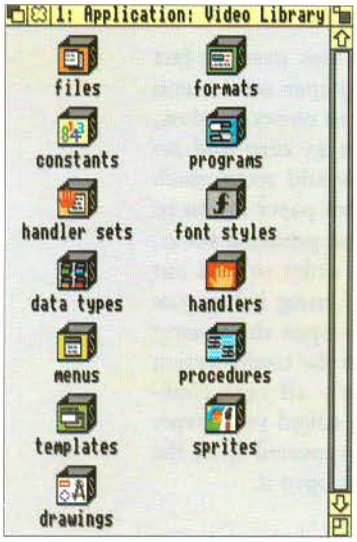


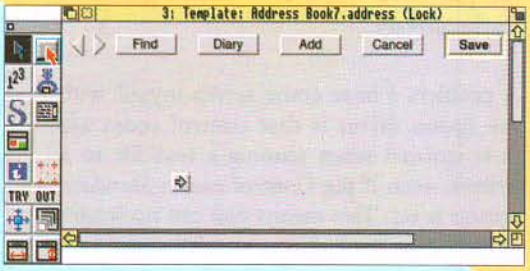
S-Base provides a state-of-the-art, WIMP-based, integrated development environment. At its heart is the S language, a high level database programming language, with over 300 commands and functions. In addition, powerful program editors, a style-based template editor, an intelligent screen layout editor and a multifile database designer, ensure that design, programming and testing can all be carried out within the *S-Base* environment.

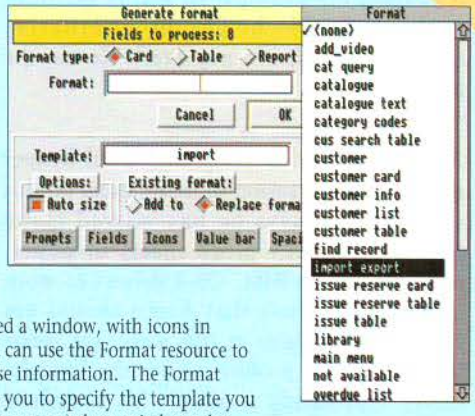
Using *S-Base*, you can create highly customised applications with minimal programming effort. A simple, card-based multi-tasking application can be created with only a few lines of code; a large, complex, high performance system can be reliably engineered in the shortest time.

S-Base is available in three versions: *S-Base Personal*, *S-Base Developer* (which may be used to create compiled applications for sale) and *S-Base Developer Plus* (for creating networked, multiuser applications).

TEMPLATES

An important part of creating a data application is the design of the windows and icons. *S-Base* provides a comprehensive window designer to ensure that your applications are consistent with other RISC OS based software and have a professional look.

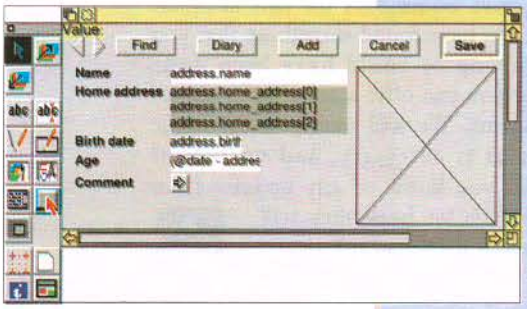




RESOURCES

An *S-Base* application is made up from a number of 'resources'. For example, the 'Files' resource defines how data is to be stored; the 'Templates' resource creates a window, with icons and buttons; the 'Formats' resource displays database information in the window.

You can copy useful resources from the example applications provided, or from applications you have written, then modify them to fit your new application. *S-Base* copies related resources automatically.



FORMATS

Having created a window, with icons in position, you can use the Format resource to insert database information. The Format dialogue asks you to specify the template you want to use (by name) then switch on the various format elements — prompts, fields, icons, value bar, spacing. *S-Base* will then insert the correct number of fields, of the correct length, into the window, together with prompts derived from the field labels. This information can be re-positioned, and you can choose different fonts and colours to create an attractive screen display.

THE PROGRAMMABLE RISC OS RDBMS

NEW

INTEGRATION

S-Base provides an interpreted, completely interactive environment in which to develop your application. Whenever an error occurs, *S-Base* immediately displays the object that caused the error, in a suitable editor, so that you can inspect and modify it.

Once your application is completed, and tested, *S-Base* Developer will compile it into a compact, distributable binary file, which cannot be edited by your users.

For the beginner, *S-Base* is supplied with a number of 'shell' applications which can be modified and extended with very little technical knowledge.

FLEXIBLE DATA HANDLING

An *S-Base* application can incorporate menus, dialogues, tables and multi-choice selectors — whatever data entry method is most suitable for your users. The format layout editor makes it easy to assemble and link these elements together into an integrated design, and *S-Base* checks everything you do for consistency, reducing the possibility of frustrating mistakes.

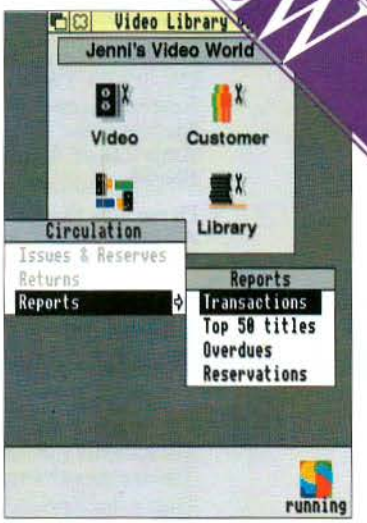
Besides text (in any outline font style), cards, reports and tables can include drawings or sprites. Reports can be produced in virtually any format, including multi-column text, address labels, ID cards, stock catalogues, etc.

HIGH SPEED

S-Base is designed to handle large volumes of data at speeds acceptable to the user: An *S-Base* application can process very large files, containing many thousands of records, in seconds, updating the screen as fast as a C program written by an expert.

Whereas a typical database can take up to five minutes to add 500 records to a file with five indexes (since the indexes must be updated after each record), *S-Base* can add 5000 records in under one minute (timed on an A5000), by performing the re-indexing later.

S-Base places no limits on the number of files you can open at once. Your application can compare, process and display data from dozens of different files with no difficulty.



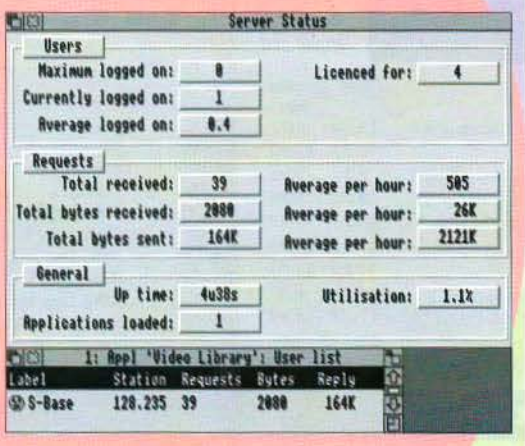
Single User Prices

S-Base Personal	£99.00
S-Base Developer	£199.00
S-Base Developer +	£299.00

For *S-Net*, and education and business site licence prices, or for further product information, please contact us.

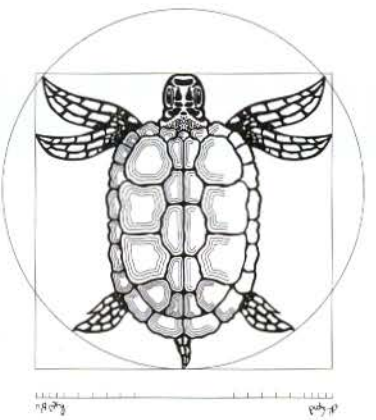
NETWORKED AND MULTI-USER APPLICATIONS

S-Base Developer Plus can be used to create applications that operate as multi-user systems over a network — where the combination of a smart database server, and highly optimised data exchange protocols, ensures high speed operation, even over Econet. Operation over the network is completely transparent to both the user and the developer.



The multi-tasking S-Base server application, S-Net, is independent of the network file server and can run on any network machine. A single S-Net server can offer any number of applications across the network, so a 2 Mb machine can serve several clients running different applications. Client machines can present a menu of applications available on the network or can be configured to locate the required application automatically.

Applications designed for network operation will run on a stand alone machine without modification.



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We also accept payment by Connect, Access ,Visa, Switch and official UK orders are welcome.

Magazine Disc

The programs from each issue of RISC User, together with a number of substantial additional items, are included on a monthly 3.5" disc. This is available to order, or you may take out a subscription to ensure that the disc arrives at the same time as the magazine.

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Six months subscription	£25.50	£30.00
Twelve months subscription	£50.00	£56.00

Disc subscriptions include postage, but you should add the appropriate rate (see below) per disc for individual orders.

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Last month's special offers on back issue discs and magazines are being maintained. All issues are currently still in stock except Volume 1 Issues 4&5 magazines. All subject to availability. Please include postage when ordering.

	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5
Magazine	£1.00 each	£1.20 each	£1.60 each	£1.90 each	£1.90 each
Disc	£2.00 each	£4.00 each	£4.00 each	£4.75 each	£4.75 each

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* Please use stock code 'a' when ordering magazines and discs

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C Notebook: Hints & Queries

Compiled and Linked by Lee Calcraft

PRINTING A FILE DIRECTLY

I want to print some text from an application which I am writing, and would like to avoid having to drop a save box on to the printer driver. Can you help?
Paul Witheridge.

To achieve your goal you will need to engage in a four-part message dialogue with the printer driver. First you should broadcast a ***PrintSave*** *message (0x80142). Since this is broadcast, you do not need to know the driver's task handle. If the message is bounced, you should complain that there is no driver present.*

The driver will respond with a ***PrintFile*** *message (0x80140) - or* ***PrintError*** *(0x80144) if the driver is a RISC OS 2 type, and the printer is busy. Your application should ignore the* ***PrintFile*** *message (which has only been retained by Acorn for RISC OS 2 compatibility), and wait for a* ***DataSaveAck*** *message from the driver.*

You should then save your file to the name supplied with the ***DataSaveAck*** *message, and send a* ***DataLoad****. The driver will respond with DataLoadAck to indicate that the file is in the print queue.*

SIMPLE SCREEN CLEARS

Atle Mjelde Bardholt

The following simple routines can be used to clear the text and graphics screens respectively:

```
#include "kernel.h"
void clear_screen(void)
{
  _kernel_oswrch(12);
}

void clear_graphics(void)
{
  _kernel_oswrch(16);
}
```

RISC_OSLib's DRAG_A_SPRITE

Lee Calcraft

Quite simply - DragASprite is not implemented even on the latest release versions of RISC_OSLib - but watch this space for a possible solution.

CONTRIBUTING TO DESKTOP BOOT FILES

David Pilling

When the user creates a Desktop Boot file from the Acorn icon on the icon bar, the Wimp messaging system is used to ask all applications if they want to contribute. The idea is that applications will add a line to the boot file so that they will be run each time the machine boots up.

You can achieve this by responding to the broadcast message as follows:

```
/* type 17 & 18 messages */

void message(void)
{
  switch (wimpevent.data.msg.hdr.action)
      {
        ......
        break;

      case 10: write_boot_file();
        break;
    etc.
}

void write_boot_file(void)
{
  char string[256];
  int handle;

  handle=wimpevent.data.msg.data.words[0];
  sprintf(string,\
        "Run %s\n",getenv("My_App$Dir"));
  fs_write(handle,string,strlen(string));
}

os_error fs_write(int handle,\
                  void *string,int len)
{
  _kernel_swi_regs r;
  os_error *e;

  r.r[0]=2;
  r.r[1]=handle;
  r.r[2]=(int) string;
  r.r[3]=len;
  e=_kernel_swi(OS_GBPB,&r,&r);
  return e;
}
```

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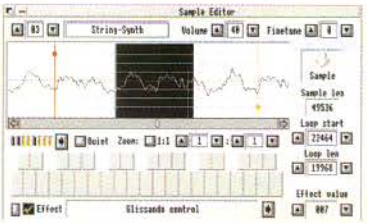
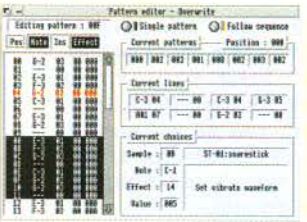
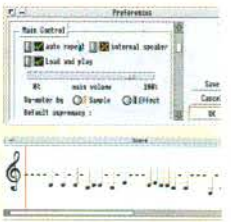


Built in Sample editor, allows you to Cut and Paste parts of the sample. You can try out any of the 40 different special effects, and define a repeat loop by dragging visual markers.

Powerful, deadly accurate, Realtime Monitor, displays Digital Score Data, Vu Bars and Instrument Waveforms.





The Pattern Editor, used in conjunction with the Musical Notation sco display, makes editing a track very easy. Once created each pattern ca be slotted into the sequence, wherever you wish. Cut and Paste, Cop Transpose, Exchange, etc... facilities are offered to enhance flexibili

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Archivist

£29.95 INC

Cards are created with the Designer part of the package, a new form can be designed simply by selecting fields, and dragging them to their required position.

Text, Integer, & Real field types can be set,in addition to multiple format Date fields, and Formula fields with user definable equations.

Alterations, for example - extra fields can be added to a card, even if you have started inputting data, and no data will be lost.

Archivist is able to store and display or play Textfiles, Sprites, Drawfiles, Maestros, Samples and Soundtracks.

Archivist can be interrogated using either of two search routines, Easy Search gives you a duplicate copy of the card, you type the variable to be searched for in the appropriate field, and Archivist does the rest.

For those requiring a little more flexibility, a complex search equation can be built up using mathematical, and Basic Operands.

Of course, Archivist also provides a Search and Replace

A Clipboard, allowing cut and paste operations, and a user definable Quick Entry routine, speeds up data entry into Archivist considerably.

Card Print allows printing of cards in WYSIWYG format, using of course the standard Outline fonts. (2 supplied)

Reports generator, allows your data to be presented in a tabular form. Archivist also has a specifically designed Label Printer for your Names and Addresses files.

Archivist files are saved compressed to save valuable disc space, and with a Password for privacy if required.

Archivist can automatically produce CSV files, with the option to create Graphbox headers. Also it is possible to save data as a textfile for export to DTP's etc.

Statistics window displays the Averages, Minimums, Maximums and Totals of each field for the entire database.

Archivist is able to Import files from many existing databases, on the Archimedes, as well as the BBC and PC.

Existing Version 2 users can upgrade to Version 4.70 for

I Owe You Software

For reasons of space, these applications are only available on this month's magazine disc.

Pinboard Backdrops

by J.R.Dawson

Backdrops provides 46 attractive patterns which can be used as full-screen backdrops with the RISC OS 3 Pinboard.

The application is incredibly simple to use - just click on the required pattern in the window and instantly the background will be filled with that pattern.

The patterns are tiled from sprites of various sizes contained in the application, and you could replace these with your own designs if you wish. If you come up with anything worthwhile, RISC User will consider publishing sets of patterns on future magazine discs.

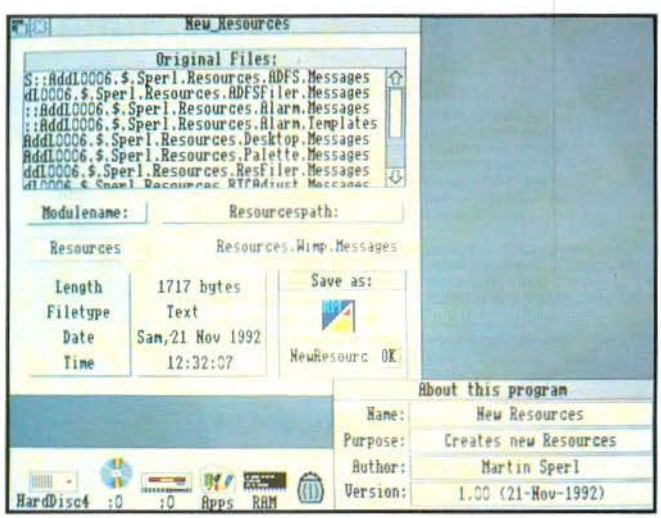
Resource Generator

by Martin Sperl

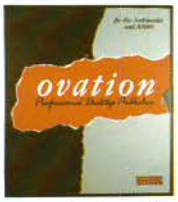
RISC OS 3 provides what is known as a Resources filing system, *ResourceFS*. This holds the applications which are built into the RISC OS 3 ROM (Paint, Edit, Draw etc.), and also resources such as template and message files for these and other, module-based, applications such as the Desktop, ADFS and so on. It is possible to add disc-based applications to ResourceFS, and also to replace some or all of the resources files with your own (for example, to provide a messages file for use in another language), but this is not a simple matter to achieve, as it requires the construction of a module containing the necessary files.

That's where the handy little application presented here comes in. *NewResrc* creates the resources module for you - all you have to do is drag the appropriate application or resources files to its window, and then save the module to disc. Installing the module then automatically adds the resources contained within it to *ResourceFS*. Using NewRsrc allows you to keep all your favourite applications in memory ready to be installed from the *Apps* window which is permanently located on the RISC OS 3 icon bar. Or you may want to replace all the regular message files with your own (or even redesign Edit's templates to suit yourself!).

Full instructions on how to use NewResrc are included on the disc. Also supplied is a module called *GermanRisc* which was created using the program. This provides German messages for many of the ROM-based applications such as the Wimp, Alarm and ADFS.



RISC Developments' Software



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Ovation is the easy-to-use desktop publisher used on thousands of sites in education, home and business across the country. Now, in response to customer feedback, it has been enhanced with many new features, setting even higher standards of quality and value. Ovation is packed with professional features, yet remains easy-to-learn and instinctive to use. It provides a complete solution for all document generation; from simple single page letters to entire books with diagrams and scanned images.

Try before you buy!

A working demo is available for only £5 (inclusive), which is refundable against a future purchase of Ovation. This version has no Save or Spellcheck facilities. Please write or phone for our detailed Ovation brochure.

Members' Price: **£98.88**

Desktop Thesaurus
SYNONYM FINDER

Desktop Thesaurus is a superb companion for all desktop publishers and word processors. It has been recently expanded, and now contains over 17,250 keywords and nearly 182,000 carefully chosen alternative words. The synonyms for the required keyword are listed in a scrolling window according to parts of speech, so nouns, verbs etc. are grouped together. Clicking on any synonym itself then selects that word as a keyword and displays its synonyms allowing you to browse through the data looking for the ideal alternative word. When you have located an alternative word, it may be transferred instantly into almost any application for you.

A special hotlink is provided with Ovation, but it is ideal for use with other packages such as Edit, Impression, Pipedream, 1st Word Plus etc.

Members' Price: **£18.98**

TypeStudio
FONT MANIPULATION

TypeStudio is a complete text manipulation package ideal for producing professional quality adverts, posters, banners, logos, letterheads etc. Drawing tools allow lines and curves to be drawn to create almost any shape, along which text can be flowed. Pairs of lines may be linked to create shapes into which text and Draw files may be moulded. A range of special effects are available, including: shadow, slant, 3D and mirror.

Features include:

- Flow text along straight and curved paths
- Mould text and Draw files to shapes
- Wall, floor and graduated shadows
- 3-D, mirror, slant and plinth effects
- Save in internal and Draw file format
- Print using RISC OS printer drivers
- Import Draw files as moulds
- Copy, rotate and magnify
- Grid and zoom facilities

The package includes 7 fonts and a 64-page user guide containing worked examples.

Members' Price: **£44.94**

HP500/550 & Star Drivers
PRINTER DRIVERS

The Printer DJ printer driver produces near laser quality output from the highly acclaimed Hewlett Packard DeskJet 500C and 550C colour printers. Both release 2 and release 3 drivers are supplied for each printer, each supporting 75 x 75, 150 x 150 and 300 x 300 print resolutions in monochrome, grey scale and full colour modes. PrinterLC is the approved printer driver for Star colour dot-matrix printers. It is suitable for both 9 and 24-pin printers including: LC24-200, LC-200, XB24-10 and LC-10. PrinterLC is a release 2 driver, supporting print resolutions from 60 x 72 dpi to 360 x 360 dpi depending on the printer model. Also suitable for many Epson and NEC colour printers.

Members' Price: **£14.98**

RISC developments

RISC Developments Ltd.

117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 40303 Fax. (0727) 860263

All Software is available from good dealers or direct from RISC Developments. Prices include VAT but please add carriage of £3.00 for Ovation and £2 for other software. Please write or phone for details of educational prices and site licences.

RISC Developments Software

Masterfile 3

DATABASE MANAGER

Masterfile version 3 is the latest development in the best selling family of database programs for Acorn systems. It is fast, simple to use and provides powerful data management facilities suitable for home, education and business use. Included amongst its many features is a very comprehensive indexing system allowing data to be accessed in any order. In addition, subsets may be created allowing access to just those records that match the search criteria. Both indices and subsets are updated automatically when records are added, modified or deleted. The report generator allows databases to be printed in card or spreadsheet form, and provides full label printing facilities. To trade-in an earlier version of Masterfile, please return your original disc to the address below, and deduct £5 inc VAT from the price. Only one trade-in allowed per order.

Members' Price: **£48.94**

Hard Disc Companion

HARD DISC BACKUP

Version II of Hard Disc Companion offers superior performance and efficiency. It has been completely re-written and is now twice as fast and even easier to use.It provides a structured approach to the backing up of hard drives, and the recovery of files in the event of disc failure or accidental file deletion. Both Full and Incremental backups are supported, and the files to be backed up or ignored may be specified using simple drag operations. The entire backup specification may be saved in a script file for use at a later date. Hard Disc Companion II uses an efficient compression system to backup as much data as possible onto the floppies without increasing the backup time. Separate applications are included to restore entire backups or just selected files.

Members' Price: **£44.94**

Hearsay

COMMUNICATIONS

Hearsay II is the most advanced communications package available for Acorn systems. It is multi-tasking and fully RISC OS compliant and is designed for easy communications for the first-time user, but with a wide range of advanced features making it the professionals choice. Hearsay is ideal for use with Prestel, Telecom Gold, Campus 2000 and Compuserve, and also provides very high quality VT320, VT102, VT52 and Tektronix 4105 Colour terminal emulations for direct connection to mini and mainframe hosts. In addition it gives access to Minitel systems such as the Teletel service and provides Xmodem, Ymodem, Zmodem and Kermit file transfer, a comprehensive script language, an auto-dial number directory and drivers for most popular modems. Please write of phone for detailed specification.

Members' Price: **£74.91**

PlayBack

MOUSE RECORDER

PlayBack allows recording in real-time of all mouse and keyboard operations as they are carried out. This new package will produce intriguing and eyecatching displays that will be of interest to home, education and business users as well as for training. It is an ideal tool for creating demonstrations or testing programs which run in the desktop. During desktop operation, all mouse operations and key presses may be recorded and saved to file. On playback everything will happen in exactly the same way, with the pointer following all the recorded movements, and text appearing on the screen as if typed from the keyboard. A synchronised text commentary maybe added, and recordings may be converted to ASCII format for editing. A play-only version is supplied which may be freely distributed with recordings.

Members' Price: **£18.98**

RISC developments

RISC Developments Ltd.

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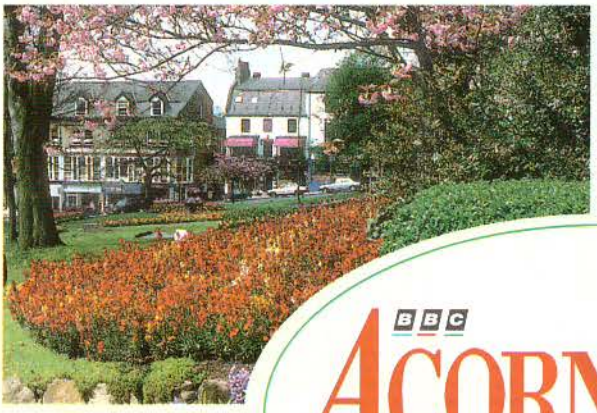
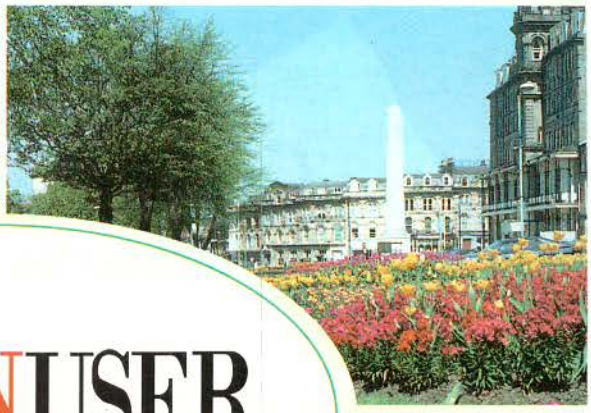
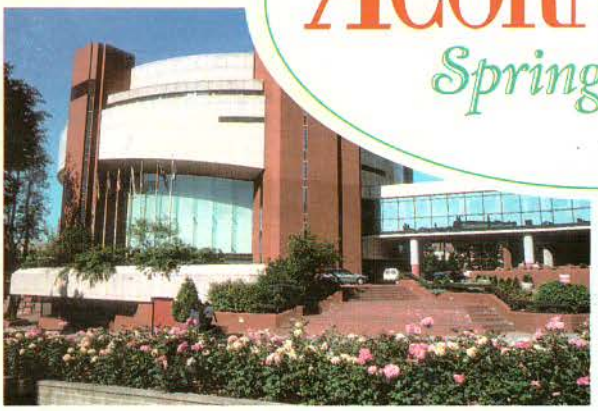
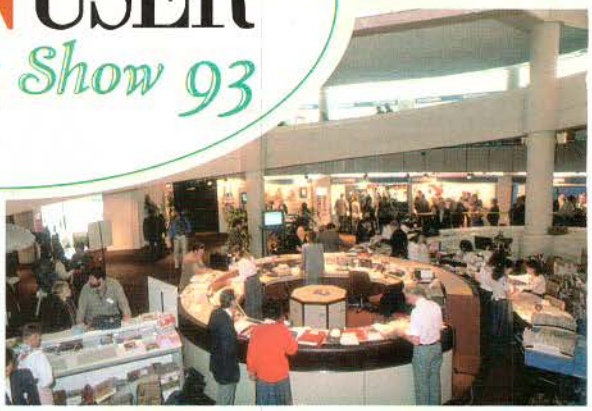




BBC ACORN USER
Spring Show 93





Harrogate International Centre - 15th, 16th & 17th April 1993

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